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JUNE 1979 Number 418 -- Part I

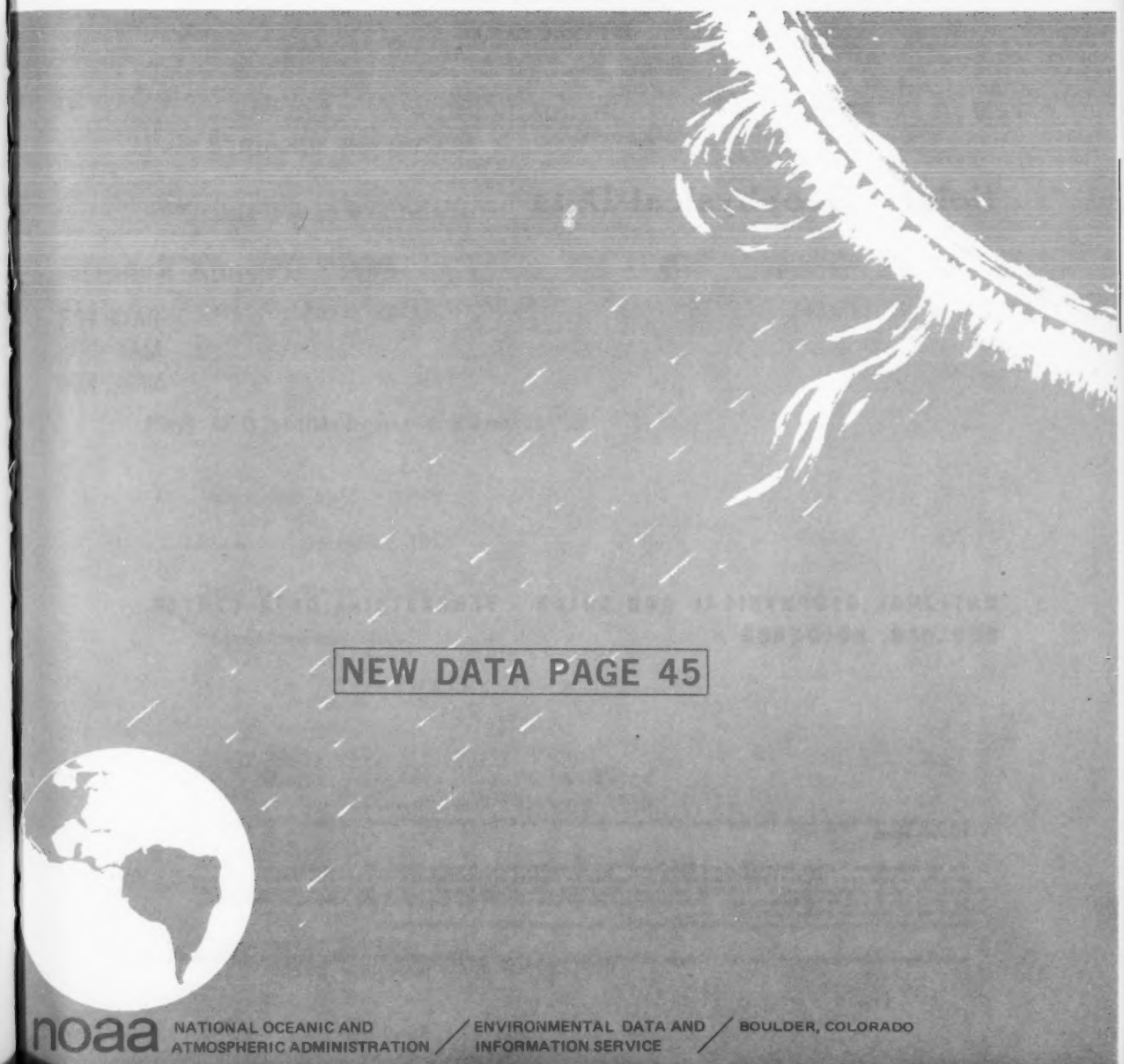
P-A STACKS

JUL 16 1979

Solar-Geophysical Data prompt reports

Data for May 1979 -- April 1979

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



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Solar - Geophysical Data

NO. 418 JUNE 1979

Part I (Prompt Reports)

DATA FOR
MAY 1979
APRIL 1979

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SOLAR-GEOPHYSICAL DATA

No. 418

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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F.1i	Cosmic Ray Neutron Counts (Kiel)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	
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Notes:

"411A 46" listed under 1978 Sep means that the sunspot drawings for September 1978 were contained in *Solar-Geophysical Data* Number 411 - Part I, beginning on page 46.

A = Part I, B = Part II.

---- = no data available.
blank = data not yet received.

SGD 418 Part I (Prompt)

MAY 1979 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1979

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

PRESTO BOULDER 02/1803Z SOFLARE M9/1B N19W55 02/1651Z DURATION 19 MINUTES NORTH-SOUTH PARALLEL RIBBONS.
TENFLARE 200 FLUX UNITS 02/1651Z DURATION 14 MINUTES.

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
121	01	30	206	186	025	N18W29	0	0	0		01	N18W29	E	SOLALERT 01/03 MAGALERT MINOR 01/02
						S23W14	1	0	0			S23W14	E	
						N23E02	3	0	0			N23E02	Q	
						N16E20	13	0	0			N16E20	A	
						S28W07	0	0	0			S28W07	Q	
						N12E25	4	0	0			N12E25	E	
						S25E75	0	0	0			S25E75	Q	
						S33E14	0	0	0			S33E14	Q	
122	02	01	232	178	014	N18W43	2	1	0		02	N18W43	E	SOLALERT 02/03 MAGNIL
						S25W44	1	0	0			S25W44	Q	
						S24W28	1	0	0			S24W28	Q	
						N24W11	1	0	0			N24W11	Q	
						N16E07	5	1	0			N16E07	A	
						N12E11	0	0	0			N12E11	Q	
						S25E63	0	0	0			S25E63	Q	
						S20W49	0	0	0			S20W49	Q	
						N12E19	1	0	0			N12E19	Q	
						S37W03	0	0	0			S37W03	Q	
123	03	02	173	178	014	N19W60	14	1	0	PRESTO BOULDER	03	N19W60	E	SOLALERT 03/04 MAGALERT MINOR 04/05
						S24W40	3	0	0	SOFLARE M9/1B		S24W40	Q	
						N26W26	0	0	0	N19W55 IN REGION		N26W26	Q	
						N16W06	7	0	0	1705 AT 02/1651Z.		N16W06	A	
						N11W02	0	0	0	A 10-CM RADIO		N11W02	Q	
						S24E51	3	0	0	BURST OF 200 FLUX		S24E51	Q	
						S19W63	0	0	0	UNITS WAS OBSERVED.		S19W63	Q	
						N13E07	0	0	0			N13E07	Q	
						N20E59	0	0	0			N20E59	Q	
124	04	03	138	163	005	N18W72	3	0	0		04	N18W72	CA	SOLALERT MAGALERT MINOR 04/05
						S25W52	0	0	0			S25W52	Q	
						N25W38	0	0	0			N25W38	Q	
						N15W20	2	0	0			N15W20	A	
						S26E40	1	0	0			S26E40	Q	
						S20W78	0	0	0			S20W78	Q	
						N20E47	0	0	0			N20E47	Q	
						S26E71	0	0	0			S26E71	Q	
125	05	04	179	173	005	N18W88	0	0	0		05	N18W88	E	MAJOR FLARE ALERT
						S25W68	0	0	0			S25W68	Q	MAGALERT MINOR 05
						N16W33	0	0	0			N16W33	DP	
						N11W29	0	0	0			N11W29	Q	
						S25E26	1	0	0			S25E26	Q	
						N12W21	0	0	0			N12W21	A	
						N21E35	0	0	0			N21E35	Q	
						S27E59	0	0	0			S27E59	Q	
						N22E67	0	0	0			N22E67	Q	
						N04E40	0	0	0			N04E40	Q	
						S28E73	1	0	0			S28E73	Q	
						N24E59	2	0	0			N24E59	Q	
126	06	05	150	166	005	S25W81	0	0	0		06	S25W81	Q	SOLALERT 06/XX MAGNIL
						N15W45	2	0	0			N15W45	DA	
						S26W12	0	0	0			S26W12	Q	
						N11W35	0	0	0			N11W35	DA	
						N19E22	0	0	0			N19E22	Q	
						S27E45	0	0	0			S27E45	Q	
						N21E56	3	0	0			N21E56	Q	
						S30E59	0	0	0			S30E59	Q	
						N25E45	2	0	0			N25E45	Q	
127	07	06	165	171	007	N15W57	0	0	0		07	N15W57	E	SOLALERT 07/XX MAGQUIET
						S26W03	0	0	0			S26W03	Q	
						N12W48	4	0	0			N12W48	E	
						S32E27	0	0	0			S32E27	Q	
						N21E42	4	0	0			N21E42	CA	
						S30E44	0	0	0			S30E44	Q	
						N25E32	4	0	0			N25E32	DA	
						N17E60	0	0	0			N17E60	Q	
						S22E65	0	0	0			S22E65	Q	
						N04E72	0	0	0			N04E72	Q	
128	08	07	279	175	011	N16W69	0	0	0		08	N16W69	Q	SOLNIL MAGQUIET
						S26W16	0	0	0			S26W16	Q	
						N12W61	3	0	0			N12W61	E	
						S26E22	0	0	0			S26E22	Q	
						N22E29	2	0	0			N22E29	E	
						S30E33	0	0	0			S30E33	Q	
						N24E21	1	0	0			N24E21	Q	
						N18E49	0	0	0			N18E49	Q	
						S22E55	0	0	0			S22E55	Q	
						N04E61	0	0	0			N04E61	Q	
						N26W68	2	0	0			N26W68	Q	
						S33E65	0	0	0			S33E65	Q	
						S15E74	0	0	0			S15E74	Q	
						N08E54	0	0	0			N08E54	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1979

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
129	09	08	271	184	008	N16W75	2	0	0		09	N16W75	Q	SOLQUIET MAGQUIET
						S26W16	0	0	0			S26W16	Q	
						N12W74	2	0	0			N12W74	Q	
						S26E08	0	0	0			S26E08	Q	
						N22E17	2	0	0			N22E17	E	
						S29E21	0	0	0			S29E21	Q	
						N24E08	1	0	0			N24E08	Q	
						N19E36	0	0	0			N19E36	Q	
						S21E41	0	0	0			S21E41	Q	
						N04E48	2	0	0			N04E48	E	
						S33E54	0	0	0			S33E54	Q	
						S15E62	3	0	0			S15E62	E	
						N08E33	0	0	0			N08E33	Q	
						S30W75	0	0	0			S30W75	Q	
						N28E31	0	0	0			N28E31	Q	
						N28E71	0	0	0			N28E71	Q	
						S16E76	0	0	0			S16E76	Q	
130	10	09	213	178	014	N12W83	0	0	0		10	N12W83	Q	SOLQUIET MAGQUIET
						S26W04	0	0	0			S26W04	Q	
						N22E04	1	0	0			N22E04	E	
						S28E08	0	0	0			S28E08	Q	
						N24W04	0	0	0			N24W04	Q	
						N20E22	0	0	0			N20E22	Q	
						S21E27	0	0	0			S21E27	Q	
						N05E36	2	0	0			N05E36	Q	
						S33E39	0	0	0			S33E39	Q	
						S15E47	0	0	0			S15E47	Q	
						N08E18	0	0	0			N08E18	Q	
						N29E58	2	0	0			N29E58	Q	
						S16E63	0	0	0			S16E63	Q	
131	11	10	184	171	008	S26W17	0	0	0		11	S26W17	Q	SOLQUIET MAGQUIET
						N21W09	2	0	0			N21W09	E	
						S29W05	0	0	0			S29W05	Q	
						N24W17	0	0	0			N24W17	Q	
						N19E09	0	0	0			N19E09	Q	
						S21E14	0	0	0			S21E14	Q	
						N05E21	0	0	0			N05E21	Q	
						S15E32	0	0	0			S15E32	Q	
						N08E05	8	0	0			N08E05	E	
						N28E41	0	0	0			N28E41	Q	
						S15E49	0	0	0			S15E49	Q	
132	12	11	215	175	016	S26W31	1	0	0		12	S26W31	Q	SOLALERT 12/XX MAGALERT 12/13
						N21W23	4	0	0			N21W23	E	
						S28W18	0	0	0			S28W18	Q	
						N24W31	0	0	0			N24W31	Q	
						S21E02	2	0	0			S21E02	Q	
						N04E08	0	0	0			N04E08	Q	
						S14E19	1	0	0			S14E19	Q	
						N08W08	10	0	0			N08W08	A	
						N28E28	1	0	0			N28E28	Q	
						S15E36	0	0	0			S15E36	Q	
						N13E72	4	0	0			N13E72	E	
						N16E50	0	0	0			N16E50	Q	
133	13	12	228	180	010	N23W45	0	0	0		13	N23W45	Q	SOLALERT 13/XX MAGNIL
						S26W44	0	0	0			S26W44	Q	
						N22W35	2	0	0			N22W35	E	
						N08W23	5	0	0			N08W23	A	
						S21W12	3	0	0			S21W12	E	
						N04W06	0	0	0			N04W06	Q	
						S14E06	0	0	0			S14E06	Q	
						N15E12	0	0	0			N15E12	Q	
						N27E17	1	0	0			N27E17	Q	
						S15E23	0	0	0			S15E23	Q	
						N16E37	2	0	0			N16E37	CE	
						N15E56	1	0	0			N15E56	CE	
						S15E58	0	0	0			S15E58	Q	
						N25E76	0	0	0			N25E76	Q	
134	14	13	260	182	009	S23W56	0	0	0		14	S23W56	Q	SOLALERT 14/XX MAGQUIET
						N22W48	4	0	0			N22W48	E	
						S19W25	1	0	0			S19W25	Q	
						N05W19	0	0	0			N05W19	Q	
						S13W09	0	0	0			S13W09	Q	
						N09W35	1	0	0			N09W35	DA	
						N28E04	0	0	0			N28E04	Q	
						S14E10	0	0	0			S14E10	Q	
						N13E45	0	0	0			N13E45	Q	
						N15E24	2	0	0			N15E24	E	
						S15E44	0	0	0			S15E44	Q	
						N24E68	0	0	0			N24E68	Q	
						N15W02	2	0	0			N15W02	E	
						N08W22	0	0	0			N08W22	Q	
						S37E28	0	0	0			S37E28	Q	

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						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
135	15	14	287	178	012	S26W71	0	0	0		15	S26W71	Q	SOLALERT MINOR 15 MAGQUIET
						N20W68	2	0	0			N20W68	Q	
						S21W38	0	0	0			S21W38	Q	
						N04W33	0	0	0			N04W33	Q	
						S14W24	0	0	0			S14W24	Q	
						N08W50	0	0	0			N08W50	Q	
						N29W11	0	0	0			N29W11	Q	
						S15W03	0	0	0			S15W03	Q	
						N14E29	2	0	0			N14E29	Q	
						N15E09	7	0	0			N15E09	E	
						N26E49	0	0	0			N26E49	Q	
						N16W17	1	0	0			N16W17	E	
						N39E14	0	0	0			N39E14	Q	
						S27W55	0	0	0			S27W55	Q	
						S29E10	2	0	0			S29E10	E	
						N26E61	0	0	0			N26E61	Q	
136	16	15	297	177	009	S26W83	0	0	0		16	S26W83	Q	SOLNIL MAGQUIET
						N21W80	0	0	0			N21W80	Q	
						S21W51	2	0	0			S21W51	Q	
						N04W45	0	0	0			N04W45	Q	
						S14W36	2	0	0			S14W36	Q	
						N08W64	1	0	0			N08W64	Q	
						N30W20	0	0	0			N30W20	Q	
						S16W15	0	0	0			S16W15	Q	
						N13E15	0	0	0			N13E15	Q	
						N15W04	2	0	0			N15W04	E	
						N25E36	0	0	0			N25E36	Q	
						N16W30	0	0	0			N16W30	E	
						N37E01	0	0	0			N37E01	Q	
						S29W03	2	0	0			S29W03	E	
						N26E48	1	0	0			N26E48	Q	
						S29E32	0	0	0			S29E32	Q	
						S17E68	0	0	0			S17E68	Q	
137	17	16	238	172	005	S21W67	4	0	0		17	S21W67	E	SOLQUIET MAGQUIET
						N04W57	0	0	0			N04W57	Q	
						S14W47	0	0	0			S14W47	Q	
						N08W73	0	0	0			N08W73	Q	
						N28W38	0	0	0			N28W38	Q	
						S15W28	0	0	0			S15W28	Q	
						N13E07	0	0	0			N13E07	Q	
						N15W17	1	0	0			N15W17	Q	
						N22E28	0	0	0			N22E28	Q	
						N15W43	2	0	0			N15W43	E	
						N36W11	0	0	0			N36W11	Q	
						S30W15	0	0	0			S30W15	Q	
						S16E55	0	0	0			S16E55	Q	
						S10E67	0	0	0			S10E67	Q	
						N16E63	0	0	0			N16E63	Q	
138	18	17	216	184	004	S20W81	11	2	0		18	S20W81	A	SOLALERT 18/XX MAGQUIET
						N05W70	0	0	0			N05W70	Q	
						N29W48	1	0	0			N29W48	Q	
						S14W41	1	0	0			S14W41	Q	
						N13W06	2	0	0			N13W06	Q	
						N16W29	0	0	0			N16W29	Q	
						N25E17	3	0	0			N25E17	E	
						N16W57	4	0	0			N16W57	CA	
						N40W22	0	0	0			N40W22	Q	
						S29W28	0	0	0			S29W28	Q	
						S15E43	0	0	0			S15E43	Q	
						S09E54	0	0	0			S09E54	Q	
						S15W06	0	0	0			S15W06	Q	
139	19	18	185	169	012	N05W84	0	0	0		19	N05W84	Q	SOLNIL MAGALERT MINOR 19/20
						N29W62	1	0	0			N29W62	Q	
						S16W54	1	0	0			S16W54	Q	
						N13W19	0	0	0			N13W19	Q	
						N16W43	2	0	0			N16W43	E	
						N24E02	0	0	0			N24E02	CE	
						N17W72	1	0	0			N17W72	CA	
						S30W40	0	0	0			S30W40	Q	
						S15E29	0	0	0			S15E29	Q	
						S13E35	0	0	0			S13E35	Q	
						S28E72	0	0	0			S28E72	Q	
						S20E76	0	0	0			S20E76	Q	

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						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
140	20	19	195	159	020	N29W74	0	0	0		20	N29W74	Q	SOLQUIET MAGALERT MINOR 20/XX
						S15W68	0	0	0			S15W68	Q	
						N13W32	0	0	0			N13W32	Q	
						N15W56	0	0	0			N15W56	E	
						N24W12	0	0	0			N24W12	Q	
						N16W85	2	1	0			N16W85	CA	
						S30W52	0	0	0			S30W52	Q	
						S15E15	0	0	0			S15E15	Q	
						S12E21	0	0	0			S12E21	Q	
						S29E55	0	0	0			S29E55	Q	
						S19E61	0	0	0			S19E61	Q	
						N14E23	0	0	0			N14E23	Q	
						N13E44	0	0	0			N13E44	Q	
						N17E80	0	0	0			N17E80	Q	
141	21	20	145	153	016	N29W85	0	0	0		21	N29W85	Q	SOLQUIET MAGNIL
						N15W67	2	0	0			N15W67	CE	
						N24W26	2	0	0			N24W26	CE	
						S28W69	0	0	0			S28W69	Q	
						S16E01	0	0	0			S16E01	Q	
						S13E04	0	0	0			S13E04	Q	
						S30E43	0	0	0			S30E43	Q	
						N20E48	2	0	0			N20E48	CE	
						N17E65	0	0	0			N17E65	Q	
						N27E17	0	0	0			N27E17	Q	
						S21E36	4	0	0			S21E36	DA	
142	22	21	191	152	010	N16W79	1	0	0		22	N16W79	Q	SOLQUIET MAGQUIET
						N23W39	0	0	0			N23W39	Q	
						N37W72	0	0	0			N37W72	Q	
						S28W82	0	0	0			S28W82	Q	
						S18W09	0	0	0			S18W09	Q	
						S13W09	0	0	0			S13W09	Q	
						S29E31	3	0	0			S29E31	E	
						S18E33	1	0	0			S18E33	Q	
						N14W04	0	0	0			N14W04	Q	
						N17E52	0	0	0			N17E52	Q	
						N26E02	0	0	0			N26E02	Q	
						S21E24	8	0	0			S21E24	E	
						N24W28	0	0	0			N24W28	Q	
						S34E77	0	0	0			S34E77	Q	
143	23	22	173	154	025	N23W53	0	0	0		23	N23W53	Q	SOLQUIET MAGALERT MINOR 23
						S17W18	0	0	0			S17W18	Q	
						S29E19	0	0	0			S29E19	Q	
						S20E25	0	0	0			S20E25	E	
						N17E43	0	0	0			N17E43	Q	
						N26W09	1	0	0			N26W09	Q	
						S21E12	0	0	0			S21E12	E	
						N24W43	1	0	0			N24W43	Q	
						S34W58	0	0	0			S34W58	Q	
						S29W56	0	0	0			S29W56	Q	
						S32W03	0	0	0			S32W03	Q	
144	24	23	161	152	010	N23W67	0	0	0		24	N23W67	Q	SOLQUIET MAGNIL
						S15W35	1	0	0			S15W35	Q	
						S30E07	0	0	0			S30E07	Q	
						S20E13	1	0	0			S20E13	Q	
						N18E31	0	0	0			N18E31	Q	
						N25W22	0	0	0			N25W22	Q	
						S22W00	1	0	0			S22W00	E	
						S34E48	0	0	0			S34E48	Q	
						S30W69	0	0	0			S30W69	Q	
						N16E70	0	0	0			N16E70	Q	
145	25	24	169	159	018	N24W78	0	0	0		25	N24W78	Q	SOLQUIET MAGALERT MINOR 25/26
						S30W05	0	0	0			S30W05	Q	
						S20W01	1	0	0			S20W01	E	
						N17E17	0	0	0			N17E17	Q	
						N25W36	0	0	0			N25W36	Q	
						S22W15	2	0	0			S22W15	E	
						S34W34	0	0	0			S34W34	Q	
						N14E53	0	0	0			N14E53	Q	
						N13W54	0	0	0			N13W54	Q	
						S33E67	0	0	0			S33E67	Q	
146	26	25	144	152	021	S30W18	0	0	0		26	S30W18	Q	SOLQUIET MAGALERT 26/XX
						S19W19	1	0	0			S19W19	E	
						N17E04	0	0	0			N17E04	Q	
						S22W28	0	0	0			S22W28	E	
						S35E23	0	0	0			S35E23	Q	
						N14E40	0	0	0			N14E40	Q	
						N14W67	0	0	0			N14W67	Q	
						S33E55	0	0	0			S33E55	Q	
						N13W38	0	0	0			N13W38	Q	
						N29W12	0	0	0			N29W12	Q	

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						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
147	27	26	168	145	016	S31W28	0	0	0		27	S31W28	Q	SOLQUIET MAGALERT MINOR 27/28
						S18W26	1	0	0			S18W26	Q	
						N18W08	0	0	0			N18W08	Q	
						N25W62	1	0	0			N25W62	Q	
						S21W40	0	0	0			S21W40	Q	
						S33E11	0	0	0			S33E11	Q	
						S16E26	1	0	0			S16E26	Q	
						N13W80	0	0	0			N13W80	Q	
						S32E41	0	0	0			S32W41	Q	
						N14W52	0	0	0			N14W52	Q	
						N30W24	1	0	0			N30W24	Q	
148	28	27	155	146	022	S31W41	0	0	0		28	S31W41	Q	SOLQUIET MAGALERT MINOR 28
						S18W45	0	0	0			S18W45	Q	
						N18W20	0	0	0			N18W20	Q	
						N25W75	0	0	0			N25W75	Q	
						S21W54	0	0	0			S21W54	Q	
						S32W03	0	0	0			S32W03	Q	
						N16E15	0	0	0			N16E15	Q	
						S32E30	0	0	0			S32E30	Q	
						N14W65	0	0	0			N14W65	Q	
						N30W37	0	0	0			N30W37	Q	
						S24E10	0	0	0			S24E10	Q	
						N24E32	0	0	0			N24E32	Q	
149	29	28	150	145	010	S18W58	0	0	0		29	S18W58	Q	SOLQUIET MAGNIL
						N18W34	0	0	0			N18W34	Q	
						S22W67	1	0	0			S22W67	Q	
						S35W13	1	0	0			S35W13	Q	
						N16E03	0	0	0			N16E03	Q	
						S32E18	0	0	0			S32E18	Q	
						N23E19	0	0	0			N23E19	Q	
						S08E07	0	0	0			S08E07	Q	
						N13E76	2	0	0			N13E76	Q	
						S23E18	0	0	0			S23E18	Q	
150	30	29	141	146	020	S20W70	0	0	0	GEOMAGNETIC STORM STARTED WITH SC AT 29/1850Z.	30	S20W70	Q	SOLQUIET MAGALERT 30
						N17W48	0	0	0			N17W48	Q	
						S34W26	0	0	0			S34W26	Q	
						N16W12	0	0	0			N16W12	Q	
						S33E11	0	0	0			S33E11	Q	
						N25E06	0	0	0			N35E06	Q	
						S09W07	0	0	0			S09W07	Q	
						N14E63	1	0	0			N14E63	Q	
						S24W33	0	0	0			S24W33	Q	
151	31	30	129	154	015	N17W63	0	0	0		31	N17W63	Q	SOLQUIET MAGNIL
						S35W39	0	0	0			S35W39	Q	
						N15W26	0	0	0			N15W26	Q	
						S08W23	0	0	0			S08W23	Q	
						N16E52	0	0	0			N16E52	Q	
						S25W47	0	0	0			S25W47	Q	
						N10W54	0	0	0			N10W54	Q	
						S17E50	0	0	0			S17E50	Q	
152	01	31	150	170	007	N18W74	0	0	0		01	N18W74	Q	SOLQUIET MAGQUIET
						N15W39	0	0	0			N15W39	Q	
						N15E39	0	0	0			N15E39	E	
						N23E63	0	0	0			N23E63	Q	
						N12W67	0	0	0			N12W67	Q	
						N21W21	0	0	0			N21W21	Q	
						S21W14	0	0	0			S21W14	Q	
						S31W13	0	0	0			S31W13	Q	
						N20E70	1	0	0			N20E70	DA	
						S21E76	0	0	0			S21E76	Q	
						N07E82	0	0	0			N07E82	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1978 FINAL							1979 PROVISIONAL				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	119	64	42	136	96	109	110	158	116	116	131	108
2	98	61	48	167	112	122	110	158	127	138	134	106
3	78	51	38	159	105	125	117	191	148	141	135	103
4	60	48	62	162	100	129	115	157	123	142	138	112
5	51	54	74	177	73	121	104	146	134	135	109	113
6	31	63	66	177	74	108	122	173	146	144	91	122
7	39	84	58	147	95	112	138	163	144	146	77	148
8	45	105	62	120	103	118	148	172	142	143	69	165
9	36	108	64	109	121	108	152	165	139	146	61	162
10	29	115	67	99	149	120	144	163	137	140	87	145
11	57	127	58	84	158	118	170	157	137	156	109	148
12	62	111	71	72	158	99	188	159	138	170	107	158
13	62	114	93	92	156	98	165	159	152	169	113	163
14	64	109	93	113	170	78	158	162	163	159	116	203
15	89	102	77	133	166	59	140	178	161	155	117	207
16	94	110	52	143	163	77	143	164	159	130	119	187
17	103	98	50	136	143	92	146	164	160	142	107	184
18	115	84	50	156	135	93	132	146	162	142	98	148
19	109	77	42	159	154	85	95	138	166	136	79	109
20	109	76	30	163	151	76	84	177	169	126	68	107
21	154	77	30	171	144	68	68	181	171	134	68	114
22	158	48	36	148	125	77	63	178	155	140	79	121
23	158	38	45	156	116	55	59	188	127	139	79	117
24	154	38	48	163	134	61	65	209	99	118	80	119
25	135	30	55	168	96	85	81	209	88	114	85	124
26	152	13	45	152	102	101	93	173	108	114	118	123
27	143	22	57	142	115	118	110	162	97	117	125	118
28	130	31	57	126	117	118	122	157	95	114	132	110
29	115	48	59	122	137	111	135	153		110	132	113
30	103	39	72	94	128	103	159	149		127	120	96
31		36	100		111		177	130		147		120
MEAN	95.1	70.4	58.1	138.2	125.1	97.9	122.7	165.8	138.0	137.0	102.8	134.6

1978 yearly mean = 92.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1978							1979				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	149.1	142.9	106.0	159.8	139.0	152.0	166.6	194.1*	185.8	168.5	202.6*	180.4
2	147.0*	127.6	106.0	171.7*	137.8	159.0	167.6	200.1	185.6	170.7	203.4	179.2
3	130.8	116.5	109.6	167.8	131.7	169.9	164.2	203.5*	187.4*	173.3	194.2	164.3
4	118.6	117.4	112.3	174.4*	132.0*	177.4	165.3	192.7*	187.7	181.4	183.5	176.6
5	116.9	118.9	117.6	179.4	138.7*	181.2	169.5	194.3	197.4	180.1*	179.3	169.6
6	109.8	119.3*	122.6	181.1	137.4	172.2*	164.5	190.9	206.5	182.4	176.3	171.1*
7	110.6	128.9	128.2	177.5	141.6	174.6	178.5*	186.2	203.4	183.1*	166.7	178.0
8	109.3	135.9	130.6	167.1	150.1	168.0*	189.9	200.1	207.2*	178.9	169.0*	182.4*
9	106.5	147.1*	128.1*	157.6*	155.8	164.9*	189.6	192.6	198.7	181.4	169.6	181.3
10	108.4	156.0*	127.5	149.8	162.3	166.3	204.7	186.2	198.4*	180.6	173.0	174.7
11	113.2	163.2*	121.7	141.5	171.6*	163.7	210.5	179.5	202.2*	181.7*	170.0*	178.6
12	116.4*	174.2*	124.5	138.5	177.2	150.4	217.3	174.5	195.4	188.7	174.5	184.2
13	120.3*	165.5	134.9	138.0	178.5	145.3	210.6*	193.3	195.4	186.3	175.8	186.6
14	126.4*	163.1	132.7	143.5*	180.1	136.3	197.0	200.0*	204.2*	189.4	170.9	182.0
15	132.5	169.5	130.0*	152.6	182.0	133.8	192.7	192.1*	205.0*	181.3	168.1	181.9
16	139.5*	163.4	123.6	161.5	176.7*	128.8	180.5	189.9*	209.2	183.5*	171.7	176.4
17	149.0	159.5	119.3*	161.8	171.5	128.1	177.7	175.7	213.1	177.7	168.0	187.7
18	153.5*	154.1*	115.6	169.3*	169.4	127.4	161.5	177.6	237.7	168.6*	158.7	171.3*
19	162.8*	148.6	111.6	168.8*	170.4	128.9	152.9	187.8	237.8	177.6	159.4	161.5
20	174.2	142.9*	107.5	168.6	171.0	134.9	138.1	197.2	230.1*	184.1	156.1	155.6
21	185.4*	140.2	104.8	172.5	166.9*	126.0	132.1*	210.3	225.1	182.2	161.5	155.7
22	190.3	127.0	106.0	171.5*	161.4	127.1	132.7	226.9	223.3	181.1	159.7*	156.5*
23	196.7	123.4*	104.1	165.5*	161.4	121.9	133.4	225.1	196.0	188.5	162.3	156.0
24	194.8	118.5	105.4	158.9	156.9	123.5	135.2*	208.5	182.8	188.3	161.9	159.2*
25	183.5	113.7	104.2	157.2	156.1	124.7*	138.0	206.1	167.5	188.2	172.5	153.3*
26	182.4*	112.2	100.7	148.5	154.4	132.7	144.2	192.9	166.0	200.2	182.0	149.1
27	179.5	110.8	107.3*	146.2*	150.7	144.4*	148.7*	205.4	162.7	187.9	195.1*	149.4
28	174.1	109.9	107.7*	147.8	148.4*	154.1	164.1	209.6	163.6	188.6	192.1*	149.2
29	167.4	109.2	116.2	148.1	149.8	162.2	166.2	209.3		191.4	185.7	150.2
30	154.6*	109.2	124.1	142.6	146.5	167.8	181.7	194.1*		186.6	185.2*	158.4
31		108.8	133.9*		144.0		195.1	193.7		201.4*		174.9
MEAN	146.8	135.4	116.9	159.6	157.1	148.2	170.0	196.5	199.1	184.0	175.0	168.9

* adjusted for burst
A = interpolated data point

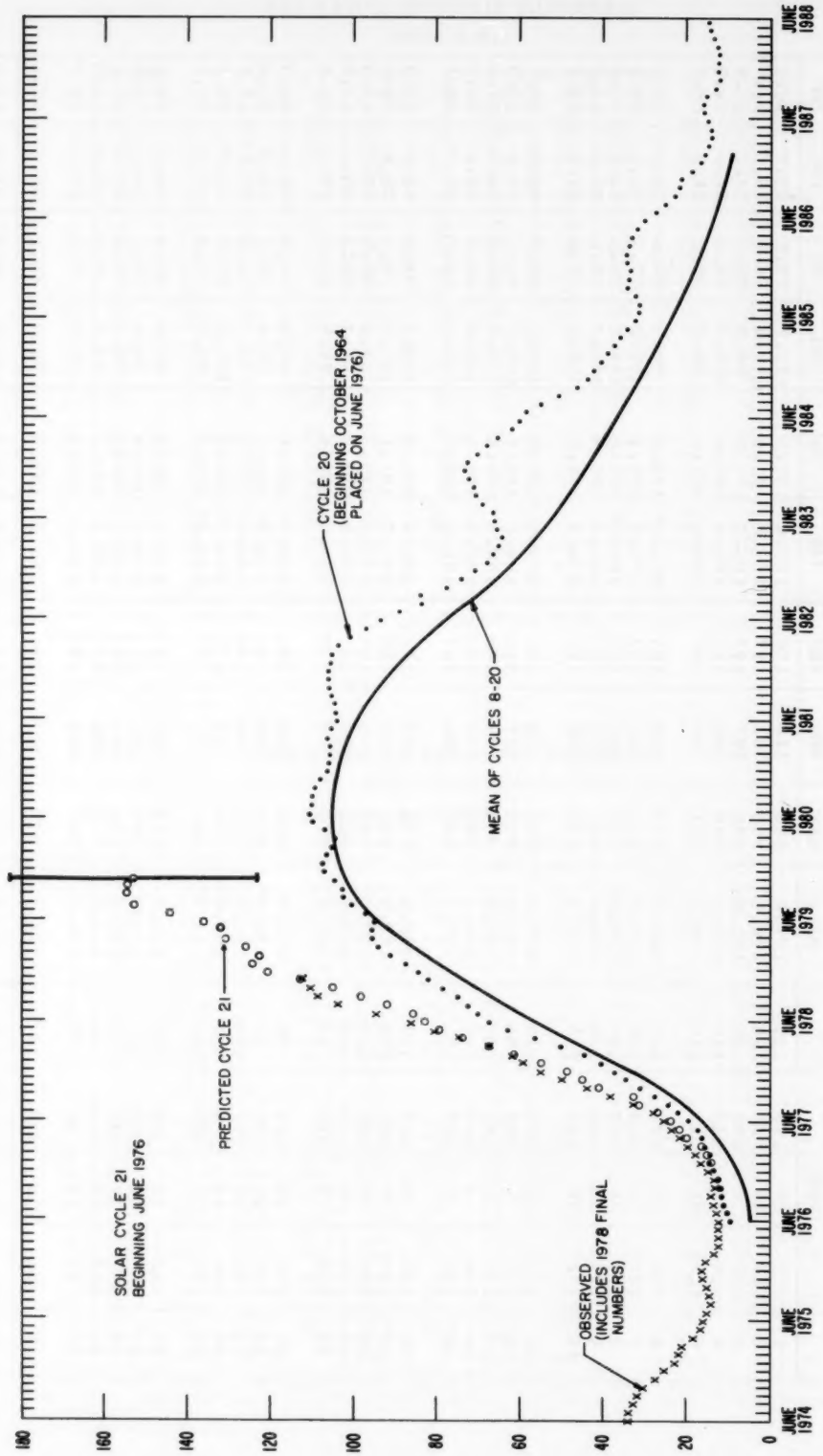
DAILY SOLAR INDICES

MAY 1979

MAY 1979	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$	OTTAWA 2800	AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	121	17	108	111	177.6	592	360	195	180.4	191.0	103.7	78.6	39.2	18.1
2	122	18	106	104	176.4	596	362	197	179.2	181.8	102.0	78.5	35.7	17.5
3	123	19	103	99	161.6	586	357	187	164.3	171.2	95.3	74.8	32.0	11.5
4	124	20	112	115	173.1	589	360	196	176.0	181.6	103.3	78.0	37.6	14.9
5	125	21	113	110	166.6	601	348	187	169.6	172.4	98.1	77.1	38.2	20.5
6	126	22	122	119	168.1*	597	368	194	171.1*	178.5	96.5	74.4	33.2	15.9
7	127	23	148	145	174.7	606	361	203	178.0	188.0	102.2	77.0	31.8	14.4
8	128	24	165	144	179.0*	602	368	209	182.4*	185.0	109.2	76.1	30.3	11.8
9	129	25	162	125	177.9	591	372	203	181.3	180.8	106.3	75.1	31.6	13.2
10	130	26	145	120	171.3	585	366	192	174.7	174.3	103.6	78.1	31.3	12.2
11	131	27	148	126	175.1	587	378	206	178.6	177.6	106.1	82.7	40.3	13.1
12	132	1	158	156	180.4	599	377	210	184.2	180.0	109.7	81.1	33.4	13.3
13	133	2	163	181	182.8	589	374	208	186.6	188.0	113.9	85.0	36.9	11.9
14	134	3	203	185	178.1	592	370	203	182.0	183.4	113.6	82.9	32.2	16.7
15	135	4	207	184	178.0	595	369	203	181.9	182.5	111.4	80.7	35.2	16.7
16	136	5	187	173	172.4	598	369	204	176.4	184.0	102.3	78.6	42.5	14.3
17	137	6	184	152	183.5	611	388	212	187.7	197.1	102.5	79.2	36.4	15.5
18	138	7	148	133	167.3*	588	370	194	171.3*	173.3	100.6	83.5	33.2	13.3
19	139	8	109	118	157.7	580	355	187	161.5	158.7	94.3	72.0	30.4	13.9
20	140	9	107	82	152.0	571	352	177	155.6	157.4	85.9	69.5	29.3	13.3
21	141	10	114	96	151.9	584	347	181	155.7	156.4	87.8	64.8	32.3	11.3
22	142	11	121	99	152.7*	605	358	184	156.5*	160.1	92.8	70.2	30.3	11.0
23	143	12	117	108	152.0	592	344	178	156.0	162.1	97.1	73.2	35.5	18.5
24	144	13	119	102	155.2*	590	338	175	159.2*	157.0	101.2	77.8	34.9	16.2
25	145	14	124	115	149.4*	584	336	173	153.3*	153.0	99.0	74.9	30.9	11.7
26	146	15	123	104	145.2	588	337	174	149.1	161.0	96.5	80.6	30.0	10.2
27	147	16	118	101	145.5	590	338	173	149.4	153.4	96.6	76.1	31.8	11.5
28	148	17	110	101	145.3	586	335	169	149.2	148.9	95.0	75.0	37.3	10.2
29	149	18	113	89	146.1	588	336	175	150.2	153.1	93.3	75.0	33.4	13.3
30	150	19	96	77	154.1	592	346	189	158.4	162.9	91.5	73.2	29.5	12.6
31	151	20	120	102	170.1	597	357	204	174.9	172.8	96.4	80.1	34.1	13.6
MEAN			134.6	121.8	165.2	592	358	192	168.9	171.8	100.2	76.9	33.9	13.9

* Adjusted for burst.

Note: Data gaps in AFGL Sagamore Hill are due to equipment problems.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	29.0	33.4	39.1	45.6	51.9	56.9
1978	61.3	64.5	69.6	76.9	83.2	89.3	97.4	104.0	108.4	111.0	113.3	119.1
												(4)
1979	124.0	128.4	132.8	135.8	138.4	142.8	147.2	150.1	152.3	153.5	153.9*	153.5
	(8)	(9)	(11)	(16)	(20)	(22)	(25)	(27)	(28)	(29)	(30)	(31)
1980	152.1	150.7	149.9	150.1	149.6	146.3	142.7	139.8	138.0	137.0	135.7	134.5
	(32)	(31)	(30)	(31)	(32)	(35)	(38)	(39)	(40)	(41)	(43)	(45)
1981	134.4	134.0	131.5	128.6	126.0	123.2	121.9	121.4	120.5	119.0	116.5	113.3
	(48)	(47)	(46)	(44)	(45)	(45)	(44)	(43)	(43)	(43)	(41)	(40)
1982	110.3	107.1	104.7	102.8	100.6	98.4	94.8	90.3	86.1	81.5	78.1	74.6
	(37)	(36)	(35)	(33)	(31)	(29)	(27)	(25)	(24)	(21)	(20)	(20)
1983	70.4	67.4	65.3	63.0	60.7	58.2	56.1	54.2	52.5	51.4	50.6	49.7
	(20)	(20)	(21)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30	(30)
1984	48.5	46.6	43.7	40.4	37.9	36.8	35.9	34.3	32.7	31.4	30.1	28.6
	(31)	(30)	(29)	(29)	(30)	(31)	(31)	(31)	(30)	(29)	(28)	(27)
1985	27.4	26.7	25.9	25.4	24.7	23.7	22.9	22.2	21.4	20.6	19.7	19.0
	(27)	(26)	(26)	(26)	(26)	(24)	(23)	(22)	(22)	(23)	(24)	(24)
1986	18.5	17.7	16.8	15.8	14.5	13.3	12.3	11.7	11.5	11.3	11.2	11.2
	(24)	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(17)	(16)	(15)	(13)
1987	11.6	12.2	13.1	14.1	15.2	16.3	17.5					
	(12)	(11)	(11)	(12)	(13)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1978 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1979 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1979) indicates that the most probable value for sunspot maximum is 154 ± 29.

Hα SOLAR FLARES

MAY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	01	0002	0009	0023	N15	E13	.393		2.0	21	SN	1	C	0009	100	1.1	
BIGB	01	0010E	0010	0039	N17	E22	.505		2.7	29D	SN	2	P	0010	130	1.4	
PALE	01	0018E	0019U	0023D	S 4	W 1	.018		30.9	5D	1B	3	C		263		FDE
MANI	01	0354E	0358	0415	N15	E18	.441		2.5	21D	SB	3	C		150		
MCMA	01	1353	1408	1422D	N15	E10	.368	15947	2.3	29D	SN		C	1408	90	1.0	E
RAMY	01	1353	1406	1412	N17	E10	.397		2.3	19	SN	3	C		71		
MCMA	01	1407	1431	1502D	N18	W43	.741	15967	28.4	55D	SB		C	1415	50	.7	DK
MCMA	01	1407	1415	1502D	N18	W43	.741		28.4	55D	SB						
BIGB	01	1425	1428	1503	N18	W42	.731		28.5	38	SN	2	C	1428	60	.8	
RAMY	01	1428	1428	1432	N17	W37	.672		28.8	4	SB	3	C		35		
BIGB	01	1509	1515	1636	N14	E17	.420		2.9	87	SN	2	C	1515	20	.2	D
BIGB	01	1512	1530	1537	N18	W42	.731		28.5	25	SN	2	C	1530	60	.8	
BIGB	01	1810	1812	1819	N14	E06	.328		2.2	9	SN	2	C	1812	20	.2	E
BIGB	01	1859	1900	1903	N17	W45	.757		28.4	4	SN	2	C	1900	20	.3	
BIGB	01	1958	2040	2133	N20	W47	.789	15967	28.3	95	2B	2	P	2040	390	5.9	
PALE	01	2024	2033U	2105D	N18	W46	.771	15974	28.4	41D	1B	2	C		172		F
BIGB	01	2030	2036	2133	N26	W50	.839		28.1	63	SN	2	P	2036	50	.8	
MCMA	01	2052E		2055D	S30	W24	.564	15968	30.1	3D	SF		P	2053	40	.5	E
MCMA	01	2052E		2055D	N20	W47	.789	15967	28.3	3D	1B		P	2053	150	2.5	E
HOLL	01	2356	0021	0049	N16	E20	.474	15974	3.5	53	1B	2	C		206		FDE
RAMY	02	1246	1247	1253	N17	W50	.806		28.8	7	SN	3	C		33		
RAMY	02	1309	1312	1317	N17	W51	.815		28.7	8	SN	3	C		27		
RAMY	02	1530	1533	1536	N17	W52	.824		28.7	6	SN	3	C		78		
BIGB	02	1547	1555	1617	N17	W57	.867	15967	28.4	30	1N	2	C	1555	120	2.2	
RAMY	02	1549	1555	1610	N17	W52	.824		28.8	21	SB	3	C		137		
HOLL	02	1558E	1602U	1630D	N19	W55	.856		28.5	32D	SB	2	C		90		F
HOLL	02	1649	1652	1702	S23	W36	.637		30.0	13	SN	3	C		28		
HOLL	02	1651	1659	1759	N23	W55	.867	15967	28.6	68	2B	3	C		390		UDE
BIGB	02	1652		1714	S27	W34	.639		30.2	22	SN	1	C	1652	150	1.8	
RAMY	02	1659E	1659	1800	N20	W54	.850	15967	28.7	61D	2B	3	C		546		Z F
BIGB	02	1700E	1700	1759	N18	W55	.853	15967	28.6	59D	2N	2		1700	450	8.0	
MCMA	02	1859	1903	1920	N20	W58	.881	15967	28.4	21	SN		C	1903	50	1.1	E
HOLL	02	1900	1904	1920	N20	W57	.874		28.5	20	SB	3	C		33		F
HOLL	02	1925	1928	1934	N14	E 1	.311		2.9	9	SN	3	C		20		F
BIGB	02	1925	1926	1926D	N13	E02	.296		3.0	1D	SF	1		1926	100	1.0	
MCMA	02	1925	1925	1930	N13	E03	.298	15974	3.0	5	SB		C	1925	40	.4	E
MCMA	02	1942	1945	1955	N20	W58	.881	15967	28.5	13	SF		C	1945	40	.9	E
MCMA	02	2041E		2057D	N20	W58	.881	15967	28.5	16D	SF		C	2045	40	.9	E
MANI	03	0127	0130	0147D	N10	W 4	.251	15974	2.8	20D	1B	3	C		210		F
MANI	03	0128E	0130	0148D	N12	W 4	.284		2.8	20D	SB	3	C		180		F
MANI	03	0138	0140	0147D	N19	W61	.901		28.5	9D	SN	3	C		30		
MANI	03	0141E	0141U	0148D	N20	W61	.903		28.5	7D	SN	3	V		30		
ISTA	03	0705		0715	N19	W65	.927		28.4	10	SN						D
ISTA	03	0710		0730	S25	E90	1.000		10.0	20	SB						A
HOLL	03	1418	1418	1426	S25	E45	.744		7.0	8	SN	3	C		17		F
BIGB	03	1418E	1418U	1512	S24	E53	.817		7.6	54D	SN	2	P	1418	70	1.2	
HUAN	03	1500	1502	1507	N18	W59	.884		29.2	7	SN	1	C	1502	20	.4	E
RAMY	03	1720	1730	1735	N19	W70	.954		28.5	15	SB	3	C		37		
BIGB	03	1738	1739	1747	S25	E43	.723		7.0	9	SN	2	C	1739	70	1.0	
RAMY	03	1811	1814	1816	N19	W70	.954		28.5	5	SN	3	C		22		
BIGB	03	2002	2008	2021	N11	W17	.384		2.6	19	SN	2	C	2008	50	.5	
BIGB	03	2003	2007	2039	N17	W21	.493		2.3	36	SN	2	C	2007	40	.4	
BIGB	03	2043	2048	2057	N11	W07	.285		3.3	14	SN	2	C	2048	50	.5	
BIGB	03	2122	2137	2143	N10	W10	.295		3.1	21	SN	2	C	2137	20	.2	
BIGB	03	2244	2245	2302	N10	W10	.295		3.2	18	SN	1	C	2245	30	.3	
BIGB	04	0041	0043	0050	N17	W75	.974		28.4	9	SF	2	C	0043	30		
HUAN	04	1458	1459	1501	N21	E85	.998		11.0	3	SF	1	C	1459	30		E
HOLL	04	1746	1747	1752	S24	E31	.588		7.1	6	SN	3	C		32		
HOLL	04	1940	1942	1952	N24	E62	.916		9.5	12	SN	3	C		38		
HUAN	04	1941	1943	1952D	N29	E66	.947		9.8	11D	SN	1	P	1943	20		D
HUAN	04	1947		1952D	N21	E78	.986		10.7	5D	SF	1	P				D
BIGB	04	2005	2018	2030	N11	W20	.420		3.3	25	SF	3	C	2018	120	1.3	
BIGB	04	2020	2023	2042	N21	W37	.694		2.1	22	SF	3	C	2023	30	.4	
BIGB	04	2030	2034	2047	N25	W63	.924		30.1	17	SF	3	C	2034	30	.7	
HOLL	04	2031	2035	2048	N25	E62	.918		9.5	17	SB	3	C		80		DE
HOLL	04	2133	2135	2147	S31	E71	.950		10.2	14	SB	3	C		79		DE
BIGB	04	2133	2134	2143	S28	E75	.966		10.5	10	SF	2	C	2134	50		
ISTA	05	0810		0825	N11	E90	1.000		12.1	15	SB	7					A

Hα SOLAR FLARES

MAY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
ISTA	05	0820		0845	N22	E70	.957		10.6	25	SB						D
RAMY	05	1532	1533	1534	N21	E65	.929		10.5	2	SN	3	C		18		
HOLL	05	1537	1540	1548	N22	E65	.930		10.5	11	SN	3	C		12		
HOLL	05	1718	1721	1729	N25	E50	.833		9.5	11	SN	3	C		16		
RAMY	05	1718	1719	1723	N26	E50	.837		9.5	5	SN	3	C		21		
HOLL	05	1739	1740	1756	N16	W50	.801		2.0	17	SB	3	C		40		DE
PALE	05	1740	1741	1744	N18	W49	.798		2.1	4	SN	2	C		20		DE
RAMY	05	1740	1740	1744	N16	W44	.741		2.4	4	SN	3	C		27		
RAMY	05	1855	1857	1901	N21	E63	.917		10.5	6	SN	3	C		20		
BIGB	05	2013	2014	2023	N11	W47	.755		2.3	10	SF	3	C	2014	20	.3	
HOLL	05	2029	2032	2043	N16	W52	.820		2.0	14	SB	3	C		136		DE
BIGB	05	2029	2031	2045	N17	W50	.804	15974	2.1	16	1N	3	C	2031	220	3.5	
HUAN	05	2035E		2044D	N17	W52	.823		2.0	9D	SN	1	P	2035	60	1.1	CE
HOLL	05	2255	2306	2330	N23	E46	.791		9.4	35	SB	3	C		73		F
MANI	05	2259	2305	2315	N25	E46	.800		9.4	16	SN	2	C		60		
RAMY	06	1126	1126	1130	N24	E40	.740		9.5	4	SN	3	C		22		
RAMY	06	1148	1148	1155	N21	E54	.851		10.5	7	SN	3	C		17		
RAMY	06	1203	1205	1206	N21	E54	.851		10.6	3	SN	3	C		16		
BIGB	06	1505	1506	1511	N20	E54	.848		10.7	6	SN	2	C	1506	60	1.1	
HOLL	06	1506	1507	1511	N21	E53	.843		10.6	5	SN	3	C		18		
HOLL	06	1555	1556	1611	N12	W50	.789		2.9	16	SB	3	C		33		F
BIGB	06	1555	1601	1609	N10	W50	.784		2.9	14	SN	2	C	1601	100	1.6	
RAMY	06	1555	1558	1659	N12	W49	.779		3.0	64	SB	3	C		37		
HOLL	06	1614	1616	1632	N12	W46	.747		3.2	18	SB	3	C		68		
BIGB	06	1616	1617	1631	N11	W48	.766		3.1	15	SN	2	C	1617	60	.9	
HOLL	06	1639	1644	1658	N12	W46	.747		3.2	19	SB	3	C		61		
BIGB	06	1640	1643	1700	N11	W48	.766		3.1	20	SN	2	C	1643	70	1.1	
MCMA	06	1644E	1702	1729D	N21	E47	.791	15990	10.2	45D	SN		C	1702	80	1.4	E
RAMY	06	1644	1647	1725	N21	E51	.826		10.5	41	SN	3	C		30		
MCMA	06	1644E		1654D	N12	W48	.768	15974	3.1	10D	SN		P	1644	30	.5	D
HOLL	06	1645	1649	1708	N21	E51	.826		10.5	23	SB	3	C		20		
BIGB	06	1651	1659	1725	N21	E47	.791		10.2	34	SN	2	C	1659	80	1.2	
MCMA	06	1746	1749	1757D	N24	E36	.703	15990	9.4	11D	SF		C	1749	30	.4	D
RAMY	06	1748	1748	1800	N24	E37	.712		9.5	12	SN	3	C		22		
HOLL	06	1748	1748	1801	N24	E37	.712		9.5	13	SN	3	C		27		
RAMY	06	1859	1902	1906	N24	E36	.703		9.5	7	SN	3	C		27		
RAMY	06	1929	1947	2050D	N21	E50	.818		10.6	81D	SB	3	C		73		F
HOLL	06	1948	2013	2019	N24	E35	.693		9.5	31	SN	3	C		26		DE
RAMY	06	2025	2028	2036	N12	W48	.768		3.3	11	SN	3	C		25		
BIGB	06	2028E	2028	2120	N25	E46	.799		10.3	52D	SN	1	P	2028	50	.7	
BIGB	06	2031	2043	2128	N18	E46	.769		10.3	57	SN	2	C	2043	130	1.9	
BIGB	06	2045	2056	2115	N35	W90	1.001		30.1	30	SN	2	C	2056	30		
BIGB	06	2230	2231	2240	N13	W56	.848		2.7	10	SN	2	C	2231	20	.4	
BIGB	06	2335	2336	2351	N24	E34	.684		9.5	16	SB	2	C	2336	150	1.9	
MANI	06	2335	2340	2353	N24	E34	.684		9.5	18	SB	3	C		140		
RAMY	07	1102	1110	1119	N12	W56	.846		3.3	17	SN	3	C		35		
MCMA	07	1231	1235	1246	N09	W59	.867	15974	3.1	15	SN		C	1235	60	1.2	E
RAMY	07	1232	1232	1245	N13	W59	.873		3.1	13	SN	3	C		53		
MCMA	07	1236	1242	1410	N26	E25	.619	15990	9.4	94	SN		C	1242	30	.4	D
RAMY	07	1325	1326	1331	N13	W60	.881		3.1	6	SN	3	C		55		
MCMA	07	1436	1438	1445	N26	W70	.960	15976	2.4	9	SN		C	1438	25	1.0	D
HOLL	07	1440E	1442U	1503	N25	W68	.950		2.5	23D	SN	1	C		70		
BIGB	07	1442E	1442	1445	N25	W70	.959		2.4	3D	SN	1	P	1442	30		
MCMA	07	1454	1500	1550D	N26	E25	.619	15990	9.5	56D	SB		C	1500	20	.3	D
BIGB	07	1455	1500	1500D	N25	E26	.617		9.6	5D	SN	1	P	1500	40	.5	
HOLL	07	1458	1502	1524	N24	E25	.599		9.5	26	SB	3	C		29		
RAMY	07	1458	1500	1518	N24	E26	.608		9.6	20	SB	3	C		41		
BIGB	07	1651	1655	1708	N06	E69	.937		12.9	17	SF	2	C	1655	30		
BIGB	07	1744	1754	1829	S34	E62	.906		12.4	45	SN	2	C	1754	20	.4	G
MCMA	07	1835	1838	1850	N19	E34	.647	15990	10.3	15	SN		C	1838	60	.8	E
RAMY	07	1836	1839	1848	N18	E30	.596		10.0	12	SN	3	C		49		
HOLL	07	1839	1839	1846	N21	E37	.692		10.6	7	SN	3	C		42		
RAMY	07	1935	1937	1941	N25	W67	.945		2.8	6	SN	3	C		15		
MCMA	07	1936E	1938	1945	N26	W70	.960	15976	2.6	9D	SN		C	1938	25	1.0	D
HOLL	07	1937	1938	1949	N26	W68	.951		2.7	12	SN	3	C		14		
RAMY	07	1944	1945U	1945D	N19	E32	.626		10.2	1D	SB	3	C		31		
MANI	08	0050E	0051	0104	N24	E20	.554		9.5	14D	SB	3	C		30		
MCMA	08	1321E	1337	1355C	N06	E56	.836	15995	12.8	34D	SN		C	1337	50	.9	E
MCMA	08	1341	1405	1448	N20	E21	.519	15990	10.1	67	SN		C	1405	100	1.2	E

Hα SOLAR FLARES

MAY 1979

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	08	1342	1357	1412	S15	E68	.926	16001	13.7	30	SF		C	1357	60	1.6	E
RAMY	08	1356	1358	1431	N21	E27	.588		10.6	35	SN	3	C		52		
MCMA	08	1415	1445	1454D	S15	E68	.926	16001	13.7	39D	1B		C	1445	80	2.2	EH
MCMA	08	1426	1427	1435	N14	W77	.979	15974	2.8	9	SN		C	1427	30	1.6	DHV
RAMY	08	1427	1428	1437	N14	W71	.954		3.3	10	SB	3	C		0		
HOLL	08	1428	1445	1457	S15	E68	.926		13.7	29	SB	3	C		107		
HOLL	08	1428E	1428U	1441D	N15	W78	.983		2.8	13D	SB	3	C		41		
RAMY	08	1456	1456	1458	N21	E26	.578		10.6	2	SN	3	C		27		
HOLL	08	1459	1517U	1521	N 3	E50	.770		12.4	22	SN	3	C		25		DE
RAMY	08	1502	1503	1509	N14	W72	.959		3.2	7	SN	3	C		0		
MCMA	08	1517	1517	1523	N03	E50	.770	15995	12.4	6	SN		C	1517	30	.5	E
HOLL	08	1519E	1519	1526	S15	E66	.913		13.6	7D	SN	3	C		29		
MCMA	08	1546	1552	1601	N07	E54	.818	15995	12.7	15	SN		C	1552	60	1.1	E
HOLL	08	1549	1549	1603	N 3	E50	.770		12.4	14	SN	2	C		21		
RAMY	08	1555	1555	1557	N 1	E47	.734		12.2	2	SN	3	C		32		
MCMA	08	1751	1757	1808	S16	E67	.920	16001	13.8	17	SF		C	1757	40	1.0	E
MCMA	08	1751	1757	1806	N08	E38	.637	15992	11.6	15	SF		C	1757	40	.5	E
BIGB	08	1846	1852	1920	S13	E66	.912	16001	13.7	34	1N	2		1852	150	3.8	
HOLL	08	1848	1852	1910	S15	E64	.899	16001	13.6	22	1B	3	C		211		
MCMA	08	1849	1851	1901D	S16	E67	.920	16001	13.8	12D	SN		C	1851	50	1.3	EH
BIGB	08	2217	2220	2230	N11	W76	.974		3.2	13	SN	2		2220	50		
HOLL	08	2218	2220	2230	N11	W75	.970		3.3	12	SN	3	C		30		
BIGB	08	2254	2300	2332	S21	E68	.929	16001	14.1	38	1N	2		2300	150		H
BERN	09	0731E	0735	0849	N17	W29	.575	15986	7.1	78D	1N		P				
BERN	09	0818	0834	0940	N24	E08	.476	15990	9.9	82	1N		P				
MCMA	09	1231E		1315D	N22	E12	.468	15990	10.4	44D	SF		C	1231	50	.6	E
MCMA	09	1231E		1332	N33	E69	.963	16003	14.7	61D	1N		C	1231	125	4.5	AEF
MCMA	09	1348	1359	1450D	N22	E12	.468	15990	10.5	62D	SB		C	1359	60	.7	EW
HOLL	09	1351	1351	1415	N31	E66	.948		14.5	24	SN	3	C		27		F
RAMY	09	1354E	1354U	1410D	N20	E11	.434		10.4	16D	SB	3	C		57		F
HOLL	09	1355	1400	1452	N21	E 8	.432		10.2	57	SB	3	C		57		F
BIGB	09	1434	1439	1446	N14	W90	1.000		2.9	12	SN	2	C	1439	60		
RAMY	09	1440	1441	1452	S 4	E40	.642		12.6	12	SN	2	C		22		H
MCMA	09	1935	1943	1955	N22	E10	.457	15990	10.6	20	SN		C	1943	50	.6	E
HOLL	09	1940		2010D	N21	E 5	.420		10.2	30D	SN	3	C		36		
MCMA	09	2006	2017	2048	N06	E22	.405	15992	11.5	42	SN		C	2017	40	.4	E
MCMA	09	2027	2028	2048	N07	E37	.620	15995	12.6	21	SN		C	2028	35	.5	E
RAMY	09	2035	2035	2043	N 7	E36	.607		12.6	8	SN	2	C		23		
WEND	10	0720E	0730	0750	S32	E37	.708		13.1	30D	SN		C		90	1.4	G
WEND	10	0720E	0744	0807	N07	E15	.311		11.4	47D	SN		C		160	1.7	E
WEND	10	0820	0835	0900D	N07	E14	.298		11.4	40D	SN		C		200	2.1	E
MANI	10	0905E	0905U	0915D	N 7	E14	.298		11.4	10D	SN	2	C		60		F
HOLL	10	1654	1654	1712	N21	W 7	.426		10.2	18	SN	3	C		37		
BIGB	10	1745	1752	1807	N06	E07	.201		11.3	22	SF	2	C	1752	110	1.1	
HOLL	10	1746	1746	1805	N 7	E11	.259		11.6	19	SB	3	C		39		FDE
RAMY	10	1750E	1752U	1834	N 7	E 8	.225		11.3	44D	SB	2	C		158		F
BIGB	10	1820	1825	1838	N05	E40	.653		13.8	18	SF	2	C	1825	50	.7	G
BIGB	10	1943	1944	2000	N13	E90	1.000		17.6	17	SN	2	C	1944	20		
BIGB	10	1948	1950	1953	N08	E07	.229		11.4	5	SF	2	C	1950	120	1.2	
HOLL	10	1949	1950	1955	N 7	E10	.247		11.6	6	SB	3	C		49		F
MCMA	10	2007E		2012D	N06	E08	.212	15992	11.4	5D	SB		P	2012	30	.3	D
BIGB	10	2009	2011	2017	N06	E09	.223		11.5	8	SN	2	C	2011	30	.3	
HOLL	10	2011	2012	2019	N 7	E10	.247		11.6	8	SB	3	C		72		
HOLL	10	2044	2048	2058	N 7	E 9	.236		11.5	14	SN	3	C		32		
HOLL	10	2052	2055	2059	N21	W 9	.435		10.2	7	SN	3	C		34		
HOLL	10	2128	2130	2139	N 5	E11	.237		11.7	11	SN	3	C		31		
BIGB	10	2129	2130	2138	N05	E10	.224		11.6	9	SF	2	C	2130	50	.5	
BIGB	10	2231	2233	2247	N20	W46	.775		7.5	16	SF	2	C	2233	40	.6	G
MANI	10	2244E	2244U	2247	N20	W45	.765		7.6	3D	SN	2	C		20		
MANI	10	2302	2304	2313	N 7	E 5	.198		11.3	11	SB	3	C		90		F
HOLL	10	2303	2304	2320	N 8	E 6	.220		11.4	17	SB	3	C		112		F
BIGB	10	2311	2314	2357	N08	E05	.213		11.3	46	SF	2	C	2314	80	.8	
BIGB	11	0038	0042	0049	N20	W08	.414		10.4	11	SF	2	C	0042	30	.3	
MANI	11	0121E	0121U	0125D	N 7	E 4	.189		11.4	4D	SN	3	C		20		
MANI	11	0121E	0121U	0125D	N20	W 6	.405		10.6	4D	SN	3	C		60		F
MANI	11	0720E	0721	0736	S30	W19	.535		9.9	16D	SN	3	C		50		
RAMY	11	1057	1058	1113	N 7	W 1	.177		11.4	16	SN	3	C		48		
RAMY	11	1057	1057	1109	S22	E 9	.355		12.1	12	SN	3	C		42		
RAMY	11	1134	1135	1140	S23	E10	.376		12.2	6	SN	3	C		21		

Hα SOLAR FLARES

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	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	11	1246E	1248	1304	N 7	E 1	.177		11.6	18D	SN	3	C		90		
HUAN	11	1359		1419	S16	E27	.493		13.6	20	SF	1	C	1407	15	.2	D
HOLL	11	1359	1424	1436	S18	E30	.544		13.8	37	SN	3	C		31		F
MCMA	11	1402E		1455	S17	E28	.512	16001	13.7	53D	SF		C	1402	80	.9	E
HUAN	11	1421		1426	N03	W00	.107		11.6	5	SF	1	C				E
MCMA	11	1422	1426	1455	N05	E02	.146	15992	11.7	33	SN		C	1426	110	1.1	E
HOLL	11	1423	1424	1437	N 3	W 0	.107		11.6	14	SB	3	C		74		U F
HOLL	11	1423	1439	1442	N14	E76	.975		17.3	19	SF	3	C		0		
HUAN	11	1427		1458	N12	E78	.981		17.5	31	SF	1	C	1441	15		D
RAMY	11	1441	1501	1536	N14	E75	.971		17.2	55	SF	3	C		13		
HUAN	11	1441		1445	N08	W03	.200		11.4	4	SF	1	C				
BIGB	11	1442	1443	1452	N08	W02	.196		11.5	10	SN	3	C	1443	90	1.0	
HOLL	11	1443	1444	1455	N 7	W 0	.176		11.6	12	SB	3	C		99		
MCMA	11	1443	1445	1458	N08	W04	.205	15992	11.3	15	SN		C	1445	80	.8	E
HUAN	11	1457		1500	N24	W26	.603		9.7	3	SF	1	C				
BIGB	11	1458	1459	1500	N25	W25	.604		9.7	2	SF	3	C	1459	20	.2	
MCMA	11	1500	1500	1506	N23	W26	.594	15990	9.7	6	SN		C	1500	30	.4	DH
HUAN	11	1530		1536	N08	W03	.200		11.4	6	SF	1	C				
MCMA	11	1531	1536	1545	N08	W04	.205	15992	11.3	14	SN		C	1536	60	.6	E
BIGB	11	1533	1535	1540	N08	W04	.205		11.3	7	SF	3	C	1535	30	.3	
HOLL	11	1534	1534	1545	N 7	W 1	.177		11.6	11	SB	3	C		65		F
RAMY	11	1534	1535	1541	N 7	W 3	.183		11.4	7	SN	3	C		41		
HOLL	11	1627	1628	1635	N21	W19	.507		10.3	8	SN	3	C		27		
MCMA	11	1636	1650	1703	N21	W21	.526	15990	10.1	27	SN		C	1650	35	.4	E
BIGB	11	1641	1646	1660	N21	W17	.490		10.4	19	SF	3	C	1646	40	.4	
HOLL	11	1642	1642	1701	N21	W19	.507		10.3	19	SB	3	C		48		
BIGB	11	1643	1645	1652	N07	W05	.196		11.3	9	SF	3	C	1645	30	.3	
MCMA	11	1741E	1751	1805D	N21	W21	.526	15990	10.2	24D	SF		C	1751	60	.7	E
MCMA	11	1741E	1743	1758	N29	E39	.758	16003	14.7	17D	SN		C	1743	40	.6	E
HOLL	11	1742	1743	1754	N28	E32	.692		14.1	12	SB	3	C		56		
HOLL	11	1744	1745	1747	N14	E76	.975		17.4	3	SN	3	C		10		
HOLL	11	1745	1745	1752	N21	W20	.516		10.2	7	SN	3	C		31		
MCMA	11	1801	1804	1813	N08	W05	.211	15992	11.4	12	SN		C	1804	50	.5	E
HOLL	11	1803	1804	1811	N 7	W 2	.179		11.6	8	SN	3	C		44		
MCMA	11	1818		1819D	N21	W22	.535	15990	10.1	1D	SF		P	1818	30	.4	D
MCMA	11	1834E		1836D	N08	W10	.258	15992	11.0	2D	SF		P	1834	50	.5	E
HOLL	11	1837	1838	1849	N 7	W 3	.183		11.6	12	SB	3	C		56		F
BIGB	11	2031	2039	2049	N16	E55	.845		16.0	18	SF	3	C	2039	40	.7	
HOLL	11	2122	2122	2138	N 7	W 4	.189		11.6	16	SB	3	C		27		F
HOLL	11	2130	2131	2139	N12	E73	.962		17.4	9	SN	3	C		15		
HOLL	11	2222	2226	2238	N 7	W 5	.196		11.6	16	SB	3	C		49		F
HOLL	12	0047	0051	0105	N 7	W 6	.202		11.6	18	SB	2	C		39		
RAMY	12	1328	1329	1339	N 7	W16	.323		11.4	11	SB	3	C		25		
HOLL	12	1330	1330	1344	N 7	W13	.282		11.6	14	SB	3	C		48		F
HOLL	12	1331	1332	1340	S22	W 6	.340		12.1	9	SN	3	C		39		
HOLL	12	1412	1419	1438	N21	W31	.625		10.3	26	SN	3	C		51		
HOLL	12	1506	1506	1513	N 7	W14	.296		11.6	7	SN	3	C		22		
HOLL	12	1538	1539	1557	N21	W32	.636		10.3	19	SB	3	C		27		F
RAMY	12	1616	1621	1639D	S22	W 8	.350		12.1	23D	SB	3	C		29		F
HOLL	12	1617	1621	1635	S22	W 9	.357		12.0	18	SB	3	C		102		FDE
BIGB	12	1619	1620	1631	S22	W09	.357		12.0	12	SN	3	C	1620	40	.4	
BIGB	12	1620	1621	1626	S27	W19	.501		11.3	6	SF	3	C	1621	20	.2	
HUAN	12	1720		1726	N23	E90	1.000		19.5	6	SF	1	C				D
BIGB	12	1837	1845	1901	N18	E40	.703		15.8	24	SF	3	C	1845	70	.9	
HUAN	12	1845		1848D	N17	E40	.698		15.8	3D	SF	1	P				
HOLL	12	1845	1847	1851	N15	E38	.665		15.6	6	SN	3	C		24		
BIGB	12	1951	1956	2013	S27	W70	.945		7.6	22	SF	3	C	1956	80		G
HOLL	12	2148	2149	2156	N11	E57	.852		17.2	8	SN	3	C		19		
BIGB	12	2151	2153	2203	N17	E40	.698		15.9	12	SN	3	C	2153	50	.7	
HOLL	12	2152	2152	2205	N15	E37	.654		15.7	13	SN	2	C		36		F
HOLL	12	2225E	2225	2230	S22	W11	.371		12.1	5D	SN	2	C		31		
BIGB	12	2230	2254	2258	N25	E90	1.000		19.7	28	SB	3	C	2254	50		
HOLL	13	0033	0034	0041	N 7	W19	.365		11.6	8	SN	3	C		27		F
PALE	13	0227	0228	0236	S21	W12	.367		12.2	9	SB	3	C		65		F
BIGB	13	1437	1443	1452	N17	E27	.549		15.6	15	SF	3	C	1443	20	.2	
MCMA	13	1501E		1511D	N16	E00	.324	15999	13.6	10D	SN		C	1503	50	.5	E
MCMA	13	1501E	1503	1511D	N16	E26	.529	16014	15.6	10D	SF		C	1503	35	.4	D
BIGB	13	1502	1503	1511	N16	E26	.529		15.6	9	SN	3	C	1503	30	.3	
BIGB	13	1554	1555	1604	N09	W31	.546		11.3	10	SN	3	C	1555	40	.5	
HUAN	13	1611		1620	N31	E05	.563		14.0	9	SF	1	C	1615	20	.2	D

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGB	13	1618	1623	1630	N16	E25	.517		15.6	12	SF	3	C	1623	20	.2	
MCMA	13	1640E		1652D	N17	E03	.344	15999	13.9	12D	SF		C	1642	30	.3	E
HOLL	13	1805	1817	1821	N15	E25	.508		15.6	16	SN	3	C		23		F
MCMA	13	1807	1810	1828	N16	E24	.505	16014	15.6	21	SF		C	1810	40	.5	E
MCMA	13	1816	1817	1822	N15	W03	.312	15999	13.5	6	SF		C	1817	35	.4	D
HOLL	13	1816	1816	1821	N15	E 2	.309		13.9	5	SN	3	C		32		
MCMA	13	1840	1851	1858D	N19	W49	.798	15990	10.1	18D	SF		C	1851	60	1.0	E
BIGB	13	1841	1852	1915	N20	W48	.792		10.2	34	SN	3	C	1852	70	1.1	E
HOLL	13	1844	1852	1906	N18	W50	.804		10.0	22	SB	3	C		88		F
HUAN	13	1844		1855	N19	W50	.807		10.0	11	SF	1	C	1846	30	.5	
PALE	13	1852	1852U	1859	N20	W49	.801		10.1	7	SN	2	C		26		FDE
HUAN	13	1856		1904	N25	E75	.977		19.4	8	SF	1	C				
BIGB	13	1946	1948	2006	N27	E76	.981		19.5	20	SB	3	C	1948	80		
HOLL	13	1946	1949	1953	N15	E 1	.308		13.9	7	SN	3	C		27		
HOLL	13	2033	2034	2043	N18	W50	.804		10.1	10	SN	3	C		22		F
BIGB	13	2040	2053	2053D	N23	E70	.956		19.1	13D	SN	3	P	2053	20		
BIGB	13	2057	2105	2105D	N15	E23	.484		15.6	8D	SN	3	P	2105	20	.2	E
HOLL	13	2058	2100	2114	N15	E23	.484		15.6	16	SB	3	C		37		F
HOLL	13	2230	2234	2249	N19	W52	.825		10.0	19	SN	3	C		23		
HOLL	14	0003	0003	0009	N19	W51	.816		10.2	6	SN	3	C		24		
BIGB	14	0005	0006	0016	N16	E23	.492		15.7	11	SB	3	C	0006	80	.9	
HOLL	14	0006	0007	0048	N15	E21	.460	16014	15.6	42	1B	3	C		227		U F
PALE	14	0007	0007	0015	N14	E25	.499	16010	15.9	8	1B	3	C		265		FDE
HOLL	14	0052	0053	0105	N15	W 2	.308		13.9	13	SN	3	C		29		
BERN	14	0933	0945	1005	N35	E65	.948	16012	19.3	32	1F		P				
BERN	14	1012	1014	1023	S27	W28	.589		12.3	11	SN		P				
HOLL	14	1308	1310	1325	N14	E14	.371		15.6	17	SB	3	C		38		F
HOLL	14	1415	1423	1429	S32	E17	.549		15.9	14	SN	3	C		76		
HOLL	14	1540	1541	1606	N15	E14	.384		15.7	26	SB	3	C		35		
HOLL	14	1540	1548	1606	N15	E14	.384		15.7	26	SN	3	C		108		
BIGB	14	1540	1550	1608	N16	E25	.516		16.5	28	SB	3	C	1550	100	1.1	
MCMA	14	1540E	1553	1613	N15	E14	.384	16014	15.7	33D	SB		C	1553	100	1.1	E
BERN	14	1540	1549	1614	N18	E10	.391	16014	15.4	34	1F		P				
HOLL	14	1625	1626	1649	S32	E16	.542		15.9	24	SF	3	C		21		
HOLL	14	1735	1742	1747	S32	E16	.542		15.9	12	SN	3	C		24		
BIGB	14	1858	1909	1917	S30	E13	.498		15.8	19	SN	3	C	1909	50	.5	
BIGB	14	1929	1934	1950	N38	E19	.700		16.2	21	SN	3	C	1934	40	.4	
BIGB	14	1930	1940	2016	N15	E13	.374		15.8	46	SB	3	C	1940	80	.8	
HOLL	14	1931	1936	2010	N15	E11	.356		15.6	39	SB	3	C		87		
HUAN	14	1932		2000	N15	E14	.384		15.9	28	SF	1	C	1942	45	.5	E
BIGB	14	1937	1939	1944	N22	E54	.850		18.9	7	SB	3	C	1939	30	.5	
PALE	14	1939	1939	1948	N14	E14	.371		15.9	9	SN	3	C		44		F
HOLL	14	2023	2025	2031	N15	E11	.356		15.7	8	SB	3	C		23		
HOLL	14	2109	2110	2116	N12	E34	.600		17.4	7	SN	3	C		42		
BIGB	14	2135	2141	2224	S30	E50	.814		18.6	49	SN	3	C	2141	30	.5	
HOLL	14	2156	2157	2202	S22	W37	.652		12.1	6	SN	3	C		26		
BIGB	14	2156	2158	2221	N23	W53	.845		10.9	25	SB	3	C	2158	50	.9	
HOLL	14	2157	2159	2203	N19	W63	.911		10.2	6	SN	3	C		17		
HOLL	14	2210	2221	2243	N12	E33	.588		17.4	33	SN	3	C		23		
HOLL	14	2210	2210	2243	N12	E33	.588		17.4	33	SB	3	C		20		
BIGB	14	2217	2218	2228	N24	E34	.676		17.5	11	SB	3	C	2218	40	.5	
HOLL	14	2250	2253	2329	N15	E10	.348		15.7	39	SB	3	C		97		F
HOLL	15	0008	0014	0038	S22	W38	.664		12.2	30	SB	3	C		109		
MCMA	15	1351E	1405	1417	S31	E03	.476	16017	15.8	26D	SF		C	1405	40	.4	E
MCMA	15	1427	1437	1450	S31	E03	.476	16017	15.8	23	SN		C	1437	30	.4	E
BIGB	15	1440	1450	1459	N25	E47	.802		19.1	19	SN	2	C	1450	40	.6	
BIGB	15	1450	1451	1458	N20	W25	.551		13.7	8	SN	2	C	1451	20	.2	
MCMA	15	1451	1451	1459	N20	W23	.530	15999	13.9	8	SN		C	1451	30	.4	E
MCMA	15	1505	1506	1513	S31	E03	.476	16017	15.9	8	SF		C	1506	35	.4	E
MCMA	15	1534	1539	1543	N16	E04	.327	16014	15.9	9	SF		C	1539	40	.4	E
RAMY	15	1535	1538	1549D	N14	E 2	.289		15.8	14D	SN	3	C		35		
BIGB	15	1539	1542	1547	S27	E25	.561		17.5	8	SN	2	C	1547	60	.7	
MCMA	15	1540	1546	1615D	S19	E26	.503	16009	17.6	35D	SF		C	1546	80	.9	EJ
MCMA	15	1600	1603	1615	S31	E02	.475	16017	15.8	15	SF		C	1603	35	.4	E
HUAN	15	1611	1620	1633	S16	W28	.509		13.6	22	SN	1	C	1620	45	.5	E
HOLL	15	1612	1618	1648	S15	W31	.544		13.4	36	SB	3	C		152		U
MCMA	15	1612		1647	S16	W29	.522	16001	13.5	35	SB		C	1623	90	1.1	E
WEND	15	1612	1623	1651	S15	W31	.544	16001	13.4	39	1N		C		400	5.0	CE
RAMY	15	1615	1618	1641	S16	W28	.509		13.6	26	SB	3	C		93		F
BIGB	15	1703	1704	1715	N15	E00	.304		15.7	12	SN	2	C	1704	60	.6	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	15	1704	1707	1711	N14	E 0	.287		15.7	7	SN	3	C		36		
MCMA	15	1724	1724	1729	S21	W46	.747	15996	12.3	5	SB		C	1724	50	.8	E
HOLL	15	1724	1724	1730	S22	W47	.761		12.2	6	SN	3	C		35		
BIGB	15	1802	1805	1824	N15	E02	.306		15.9	22	SN	2	P	1805	40	.4	
MCMA	15	1803E		1816	N15	E02	.306	16014	15.9	13D	SN		C	1808	50	.6	E
BIGB	15	1824	1826	1837	N27	E01	.496		15.8	13	SN	2	C	1826	20	.2	
BIGB	15	1829	1830	1833	N03	W57	.841		11.5	4	SN	2	C	1830	20	.4	
BIGB	15	1929	1941	1947	N26	E38	.727		18.7	18	SN	2	C	1941	30	.4	
HOLL	15	2015	2021	2032	N 9	W61	.882		11.3	17	SB	3	C		23		
BIGB	15	2103	2105	2112	N14	E18	.414		17.2	9	SB	2	C	2105	20	.2	
BIGB	15	2106	2111	2130	N15	E00	.304		15.9	24	SN	2	C	2111	90	.9	
HOLL	15	2141	2144	2152	S15	W34	.584		13.4	11	SN	3	C		27		
BIGB	15	2218	2224	2300	N23	E45	.775	16012	19.3	42	1B	2	C	2224	300	4.4	
HOLL	15	2219	2224	2304	N26	E47	.806	16012	19.5	45	2B	3	C		479		UDE
PALE	15	2225E	2225U	2230D	N26	E54	.862		20.0	50	SB	3	V		140		FDE
MCMA	16	1207	1222	1255D	N14	W12	.349	16014	15.6	48D	SN		C	1222	60	.6	E
MCMA	16	1210E	1215	1229	N14	W40	.682	15999	13.5	19D	SF		C	1215	30	-.4	E
MCMA	16	1226	1229	1300D	N14	E11	.339	16010	17.3	34D	SF		C	1229	30	.3	E
MCMA	16	1301	1303	1310	S16	W40	.664	16001	13.5	9	SF		C	1303	50	.7	E
MCMA	16	1305	1309	1325	N14	W40	.682	15999	13.5	20	SN		C	1309	40	.5	E
MCMA	16	1405	1437	1518	N14	W43	.716	15999	13.4	73	1N		C	1437	140	2.0	E
HUAN	16	1412		1440	N15	W45	.742		13.2	28	SF	1	C	1430	50	.7	E
BIGB	16	1438E	1438	1520	N13	E43	.712		19.8	42D	SN	1	P	1438	110	1.6	
BIGB	16	1500	1508	1530	S22	W66	.919		11.7	30	SB	2	P	1508	100		
HOLL	16	1501	1504	1550	S22	W59	.870		12.2	49	SN	3	C		39		
MCMA	16	1504	1508	1520	S20	W66	.918	15996	11.7	16	SF		C	1508	40	1.0	E
MCMA	16	1529	1543	1558	N14	W13	.358	16014	15.7	29	SN		C	1543	50	.5	E
HUAN	16	1558	1603	1620	N15	W42	.709		13.5	22	SN	1	C	1603	30	.4	
MCMA	16	1559	1601	1618	N14	W44	.727	15999	13.4	19	SN		C	1601	25	.4	D
WEND	16	1601	1635	1641D	N14	W39	.670		13.7	40D	SN		C		200	2.7	E
HUAN	16	1634	1635	1644	N14	W42	.705		13.5	10	SN	2	C	1635	35	.5	E
HOLL	16	1636	1636	1653	N14	W41	.693		13.6	17	SB	3	C		46		
MCMA	16	1637E	1638	1649	N14	W44	.727	15999	13.4	12D	SF		C	1638	40	.6	E
HUAN	16	1806		1808	N21	W39	.705		13.8	2	SF	1	C				E
HOLL	16	1807	1811	1828	S21	W62	.891		12.1	21	SB	3	C		26		
HUAN	16	1810		1817D	S20	W67	.924		11.7	7D	SF	1	P				
BIGB	16	1827	1830	1836	N07	W80	.986		10.8	9	SB	3	C	1830	20		
BIGB	16	1844	1851	1912	N16	W45	.745		13.4	28	SN	3	C	1851	60	.9	
BIGB	16	1847	1851	1912	S22	W66	.919		11.8	25	SN	3	C	1851	50		
MCMA	16	1847	1851	1855	S21	W66	.919	15996	11.8	8	SF		C	1851	40	1.0	D
HUAN	16	1847		1858	S20	W66	.918		11.8	11	SF	1	C	1853	20		D
MCMA	16	1848	1852	1856	N14	W44	.727	15999	13.5	8	SF		C	1852	25	.3	D
HOLL	16	1850	1852	1853D	N15	W42	.709		13.6	3D	SB	3	C		27		
HOLL	16	1850	1853	1853D	S21	W62	.891		12.1	3D	SB	3	C		28		
MCMA	16	1855	1857	1917	N13	E05	.281	16010	17.2	22	SB		C	1857	110	1.2	E
BIGB	16	1855	1857	1913	N15	W06	.318		16.3	18	SB	3	C	1857	140	1.5	
HUAN	16	1855	1857	1910	N14	E05	.297		17.2	15	SN	2	C	1857	80	.8	E
MCMA	16	1955	2003	2008D	S21	W66	.919	15996	11.9	13D	SN		C	2003	50	1.3	E
MCMA	16	1958	2008	2008C	N14	W15	.379	16014	15.7	10D	SN		C	2008	50	.5	D
MCMA	16	1958	2001	2004	S11	E77	.973	16023	22.6	6	SF		C	2001			D
HUAN	16	2000E		2005	S21	W68	.931		11.7	5D	SF	1	P				C
HUAN	16	2008	2018	2028	N14	W15	.379		15.7	20	SF	1	C	2018	20	.2	D
BIGB	16	2127	2129	2132	S20	W63	.897		12.2	5	SN	2	C	2129	30	.7	
BIGB	16	2133	2146	2158	S20	W63	.897		12.2	25	SN	2	C	2146	30	.7	
PALE	16	2133	2146	2154	N15	W17	.412		15.6	21	SN	3	C		65		FDE
BIGB	16	2134	2144	2213	N16	W16	.413		15.7	39	SN	3	C	2144	90	1.0	
PALE	16	2145	2145	2150	S21	W67	.925		11.9	5	SN	3	C		12		DE
PALE	17	0033	0034	0036	N14	E 5	.296		17.4	3	SB	3	C		51		F H
PALE	17	0039	0039	0100	S21	W69	.937		11.9	21	SN	3	C		32		DE
PALE	17	0107	0122	0139D	S21	W69	.937		11.9	32D	SB	3	C		69		F
BIGB	17	0117	0119	0119C	N22	W67	.938		12.0	2D	SB	3	C	0119	100		
HUAN	17	1341	1347	1352	S21	W84	.994		11.3	11	SN	1	C	1347	25		D
MCMA	17	1343	1347	1353	S22	W78	.978	15996	11.7	10	SB		C	1347	30	1.5	D
MCMA	17	1351	1354	1405D	N17	W58	.870	15999	13.2	14D	SN		C	1354	25	.5	D
HUAN	17	1352	1354	1357	N17	W56	.853		13.4	5	SF	1	C	1354	20	.3	D
MCMA	17	1410	1413	1418	S22	W78	.978	15996	11.7	8	SF		C	1413	30	1.5	E
HOLL	17	1426	1510	1512D	N15	W54	.831		13.6	46D	SB	3	V		126		DE
MCMA	17	1507	1510	1524	N19	W59	.881	15999	13.2	17	SB		C	1510	20	.4	D
BIGB	17	1507	1509	1528	N18	W56	.855		13.4	21	SB	3	C	1509	20	.4	
HUAN	17	1510	1512	1516	N19	W57	.866		13.4	6	SF	1	C	1512	30	.6	E

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	17	1511	1524	1539	S21	W74	.962		12.1	28	SN	3	C		25		F
HOLL	17	1522	1523	1535	N25	E22	.570		19.3	13	SN	3	C		20		
HOLL	17	1540	1543	1549	N25	E22	.570		19.3	9	SN	3	C		23		
HUAN	17	1620	1621	1624	S20	W83	.992		11.5	4	SN	2	C	1621	25		D
BIGB	17	1632	1647	1731	S22	W80	.984		11.7	59	SB	3	C	1647	160		
MCMA	17	1640	1645	1705	S22	W75	.967	15996	12.1	25	1N		C	1645	50	2.0	D
HUAN	17	1641		1712	S20	W80	.984		11.7	31	SN	1	C	1647	30		E
MCMA	17	1734	1748	1808	N18	W60	.887	15999	13.2	34	SN		C	1748	40	.9	E
MCMA	17	1826	1829	1833	S22	W80	.984	15996	11.8	7	SF		C	1829	25	1.5	D
BIGB	17	1845	1847	1908	N16	W56	.851		13.6	23	SN	3	C	1847	80	1.5	
MCMA	17	1845	1847	1854	N16	W55	.842	15999	13.7	9	SB		C	1847	50	1.0	DV
HUAN	17	1847	1848	1852	N16	W55	.842		13.7	5	SN	1	C	1848	25	.4	D
BIGB	17	1912	1916	1930	S16	W39	.652		14.9	18	SN	3	C	1916	30	.4	
BIGB	17	1916	1920	1948	S20	W80	.984		11.8	32	SB	3	C	1920	90		
BIGB	17	1939	1943	1958	S14	W60	.869		13.3	19	SN	3	C	1943	30	.6	
HOLL	17	1953	2003	2027	S22	W74	.962		12.3	34	SB	3	C		20		
BIGB	17	1956	2005	2031	S20	W80	.984		11.8	35	SB	3	C	2005	90		
MCMA	17	2007E	2012	2025D	S22	W82	.989	15996	11.7	18D	SF		C	2012			E
HUAN	17	2010		2020	S21	W80	.984		11.8	10	SF	1	C				
HUAN	17	2031		2036	N16	W56	.851		13.7	5	SF	1	C				D
MCMA	17	2031	2033	2038	N16	W56	.851	15999	13.7	7	SN		C	2033	50	1.0	E
HOLL	17	2127	2128	2135	N15	W58	.866		13.5	8	SB	3	C		21		
BIGB	17	2145	2146	2155	S21	E85	.995		24.3	10	SB	3	C	2146	20		
HOLL	17	2316	2318	2333	S19	W76	.970		12.3	17	SB	2	C		14		F
HOLL	18	0017	0019	0031	S19	W75	.966		12.4	14	SB	2	C		21		
BIGB	18	0022E	0022	0038	S21	W85	.995		11.6	16D	SN	2	P	0022	80		
BIGB	18	0040	0051	0106	S21	W85	.995		11.7	26	SN	2	C	0051	40		
HUAN	18	1534	1538	1540	S19	W90	1.000		11.9	6	SF	1	C	1538	15		
BIGB	18	1535	1538	1555	S12	E42	.678		21.8	20	SN	2	C	1538	30	.4	
MCMA	18	1536	1538	1552	S13	E40	.656	16022	21.7	16	SN		C	1538	30	.4	E
HOLL	18	1537	1537	1541	N14	W39	.669		15.7	4	SN	3	C		36		
HOLL	18	1538	1538	1550	S12	E41	.666		21.7	12	SB	3	C		45		F
MCMA	18	1547	1551	1558D	N16	W70	.948	15999	13.4	11D	SF		C	1551			E
BIGB	18	1623	1625	1625D	S12	E42	.678		21.8	2D	SN	2	P	1625	20	.3	
BIGB	18	1834	1838	1842	S18	W90	1.000		12.0	8	SN	3	C	1838	30		
BIGB	18	1846	1856	1905	S18	W90	1.000		12.0	19	SB	3	C	1856	60		
PALE	18	1912	1915	1928	N15	W70	.948		13.6	16	SB	3	C		18		F
PALE	18	1925	1930	1943D	N15	W42	.708		15.7	18D	SB	3	V		121		DE
BIGB	18	1925	1928	1957	N16	W41	.701		15.7	32	SB	3	C	1928	120	1.3	
MCMA	18	1933E		1952	N16	W40	.689	16014	15.8	19D	SB		P	1933	50	.7	E
BIGB	18	2242	2245	2251	S25	E85	.995		25.3	9	SN	2	C	2245	20		
HOLL	18	2345	2353	2354D	N26	W50	.829		15.2	9D	SN	2	C		30		
MANI	19	0428	0431	0442	N16	W72	.958		13.8	14	SN	3	C		40		
BUCA	19	0732E		0755D	N25	E01	.458		19.4	23D	SF		C	0735	107	1.2	E
PALE	19	2035	2036	2053D	N16	W84	.996		13.6	18D	SB	2	C		0		
MCMA	20	1523	1534	1558D	S22	E42	.712	16025	23.8	35D	SN		C	1534	50	.7	E
BIGB	20	1525	1540	1600	S24	E44	.741		23.9	35	SN	2	C	1540	40	.6	
BIGB	20	1526	1529	1544	N15	W60	.881		16.1	18	SN	2	C	1529	30	.6	
MCMA	20	1534	1538	1551	S27	E42	.735	16026	23.8	17	SN		C	1538	20	.3	D
BIGB	20	1625	1626	1631	N21	W21	.514		19.1	6	SF	2	C	1626	20	.2	
PALE	20	1728	1728	1735	S20	E40	.681		23.7	7	SF	3	C		27		DE
PALE	20	1746	1747	1800D	S20	E39	.670		23.7	14D	SF	3	C		65		DE
PALE	20	1748	1750	1807	N15	W67	.930		15.7	19	SB	3	C		19		DE
PALE	20	1749	1749	1800D	N24	W21	.547		19.2	11D	SN	3	C		21		DE
PALE	20	1806	1840	1918	S20	E39	.670		23.7	72	SN	3	C		104		DE H
BIGB	20	1824	1828	1929	S24	E43	.731		24.0	65	SB	2	C	1828	120	1.7	K
BIGB	20	1851	1852	1918	S21	E60	.877		25.3	27	SB	2	C	1852	30	.6	
PALE	20	1852	1852	1906	S20	E55	.834		24.9	14	SN	3	C		16		DE
HOLL	20	1909	1909	1947	S22	E41	.701		23.9	38	SF	3	C		56		
PALE	20	2112	2112	2121	N24	W23	.565		19.2	9	SN	3	C		43		DE
HOLL	20	2339	2342	2350	N14	W67	.929		16.0	11	SN	3	C		16		
BIGB	20	2341	2345	2345D	S21	E40	.686		24.0	40	SB	2	P	2345	120	1.6	
HOLL	20	2342	2346	0108	S22	E39	.679		23.9	86	SB	3	C		143		U F
PALE	20	2342	2349	0034	S22	E37	.657	16025	23.8	52	1B	3	C		162		FDE
HOLL	21	0014	0018	0037	N14	W68	.935		15.9	23	SB	3	C		52		
BIGB	21	0016	0018	0028	N13	W70	.946		15.8	12	SN	3	C	0018	60		
HOLL	21	0016	0022	0103	S29	E42	.746		24.2	47	SN	3	C		17		
PALE	21	0018	0018	0023	N14	W68	.935		15.9	5	SN	3	C		30		DE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	21	0146	0148	0152	S22	E37	.658		23.8	6	SB	3	C		58		FDE
PALE	21	0238	0238	0247	S20	E51	.798		24.9	9	SN	3	C		17		DE
PALE	21	0312	0319	0323	S22	E36	.647		23.8	11	SB	3	C		64		DE
MCMA	21	1356E	1406	1425	S22	E33	.613	16025	24.1	29D	SN		C	1406	60	.7	E
MCMA	21	1410	1411	1424	S23	E47	.768	16030	25.1	14	SN		C	1411	65	1.1	E
BIGB	21	1445	1448	1502	S21	E30	.572		23.9	17	SB	3	C	1448	60	.7	
MCMA	21	1445	1449	1500	S23	E33	.619	16025	24.1	15	SN		C	1449	80	1.0	E
HOLL	21	1446	1448	1545	S21	E31	.583		23.9	59	SB	3	C		127		U F
HOLL	21	1553	1605	1615	S21	E30	.572		23.9	22	SB	3	C		43		
BIGB	21	1553	1604	1615	S21	E30	.572		23.9	22	SB	3	C	1604	40	.5	
WEND	21	1634E		1658D	N14	E58	.863		26.0	24D	SN		V				E
BIGB	21	1639	1643	1702	N18	E54	.837		25.7	23	SB	3	C	1643	40	.7	
MCMA	21	1640	1644	1656	N19	E54	.839	16041	25.7	16	SB		C	1644	40	.8	E
MCMA	21	1654E	1655	1700	S20	E35	.624	16030	24.3	6D	SN		C	1655	30	.4	E
BIGB	21	1734	1736	1754	S21	E30	.572		24.0	20	SN	3	C	1736	50	.6	
PALE	21	1745	1745	1749	S22	E28	.556		23.8	4	SN	3	C		24		DE
BIGB	21	1806	1807	1813	S33	E80	.986		27.8	7	SB	3	C	1807	30		
BIGB	21	1811	1813	1824	S21	E29	.560		23.9	13	SN	3	C	1813	20	.2	
BIGB	21	1854	1859	1916	N20	W53	.833		17.8	22	SF	3	C	1859	20	.3	F
BIGB	21	1915	1920	1930	S21	E30	.572		24.1	15	SN	3	C	1920	30	.4	
PALE	21	2006	2006	2010	S22	E27	.545		23.9	4	SN	3	C		36		DE
BIGB	21	2033	2038	2050	S21	E30	.572		24.1	17	SB	3	C	2038	50	.6	
HOLL	21	2033	2037	2059	S21	E28	.548		24.0	26	SB	3	C		55		F
MCMA	21	2034	2037	2047	S23	E30	.586	16025	24.1	13	SB		C	2037	40	.5	E
PALE	21	2034	2036	2147D	S22	E27	.545		23.9	73D	SB	3	C		59		F H
BIGB	21	2043	2044	2051	S21	E41	.697		24.9	8	SN	3	C	2044	20	.3	
BIGB	21	2118	2119	2128	S32	E37	.719		24.7	10	SN	3	C	2119	20	.3	
HOLL	21	2119	2121	2128	S30	E37	.706		24.7	9	SN	3	C		20		F
HOLL	21	2222	2229	2233	S20	E25	.505		23.8	11	SB	3	C		39		
HOLL	21	2342	0014	0108	S22	E39	.680		24.9	86	SB	3	C		82		U F
PALE	22	0217E	0219	0229D	N23	W32	.641		19.7	12D	SN	3	C		35		DE
WEND	22	1111	1149	1242	S19	E38	.655	16030	25.3	91	2N		C		670	6.9	
MCMA	22	1118E		1250	S21	E35	.631	16030	25.1	92D	2N		C	1147	400	5.3	BFKU
MCMA	22	1139	1203	1255	S31	W51	.831	16021	18.7	76	SF		C	1203	20	.4	D
MCMA	22	1150E	1203	1255	S22	E18	.449	16025	23.8	65D	SN		C	1203	60	.7	E
MCMA	22	1150E	1154	1220D	N26	W02	.469	16024	22.3	30D	SF		C	1154	30	.3	E
WEND	22	1200		1242	S21	E17	.427	16025	23.8	42	1N		C		290	3.0	
MCMA	22	1221	1227	1239	N24	W42	.747	16012	19.4	18	SN		C	1227	50	.7	E
MCMA	22	1250	1307	1318	S34	E74	.969	16034	28.1	28	SB		C	1307	20	.8	E
WEND	22	1305E		1321D	S34	E70	.953		27.8	16D	SN		C				D
MCMA	22	1347	1351	1359	S22	E22	.490	16025	24.2	12	SN		C	1351	30	.4	E
BIGB	22	1906	1909	1924	N25	W45	.779		19.4	18	SN	3	C	1909	70	1.0	
MCMA	22	1907	1909	1914	N25	W45	.779	16012	19.4	7	SN		C	1909	40	.7	E
BIGB	22	2224	2227	2233	S34	E66	.935		27.9	9	SN	3	C	2227	30		
BIGB	22	2233	2237	2255	N26	W10	.493		22.2	22	SF	3	C	2237	30	.3	
HOLL	22	2235	2237	2250	N29	W 7	.524		22.4	15	SN	3	C		57		
BIGB	23	0001	0005	0021	S22	E16	.431		24.2	20	SN	3	C	0005	30	.3	
BIGB	23	0046	0047	0055	N23	W49	.806		19.4	9	SN	3	C	0047	20	.3	E
WEND	23	0602E		0617	S29	E60	.892	16032	27.8	15D	1N		C		290	3.0	D
HUAN	23	1356		1413	N23	W53	.841		19.6	17	SF	1	C				
HUAN	23	1406	1407	1417D	S20	E14	.388		24.6	11D	SN	2	C	1407	50	.5	E
HUAN	23	1424		1443	S23	W53	.825		19.6	19	SF	1	C				
HUAN	23	1424		1438	N17	E30	.574		25.9	14	SN	1	C				
MCMA	23	1430E		1440D	N25	W52	.839	16012	19.7	10D	SF		P	1431	40	.8	E
MCMA	23	1431	1436	1440D	N18	E30	.581	16031	25.9	9D	SF		P	1436	25	.3	D
MCMA	23	1707	1710	1730D	N16	W24	.494	16020	21.9	23D	SF		C	1710	40	.4	E
MCMA	23	1738	1741	1750D	S22	E18	.450	16030	25.1	12D	SN		C	1741	30	.3	E
PALE	23	1739	1741	1748	S19	E11	.347		24.6	9	SN	3	C		20		DE
MCMA	23	1754E	1754	1800	S34	E53	.857	16034	27.7	6D	SB		C	1754	15	.3	D
MCMA	23	1835	1836	1840	S17	W32	.573	16022	21.4	5	SF		C	1836	40	.5	E
HOLL	23	1920	1921	1930	S19	W33	.597		21.3	10	SN	3	C		52		
BIGB	23	2032	2039	2107	N17	E26	.527		25.8	35	SN	3	C	2039	60	.7	
BIGB	23	2043	2057	2201	S32	E90	1.000		30.6	78	SN	3	C	2057	40		
BIGB	23	2209	2212	2231	N25	W55	.862		19.8	22	SN	2	C	2212	60	1.1	
BIGB	23	2321	2322	2346	N24	W56	.867		19.8	25	SN	2		2322	20	.4	
WEND	24	0716E		0757D	S18	E02	.283		24.5	41D	SN		C				D
WEND	24	1018E		1027D	S23	W01	.364		24.4	9D	SN		C				BE
BIGB	24	1740	1741	1750	S25	W15	.461		23.6	10	SB	3	C	1741	70	.7	
PALE	24	1741	1742	1747	S24	W17	.466		23.5	6	SB	3	C		61		U H

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DAY	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP. DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
BIGO	24	1816	1818U	1825	S23	W08	.386		24.2	9	SF	3	P	1818	30	.3	
BIGO	24	1928	1936	1944	N23	E75	.974		30.4	16	SN	3	C	1936	60		
BUCA	25	0732E		0800	S18	W12	.346		24.4	28D	SF		P	0735	107	1.2	E
HUAN	25	1254		1307	N14	W35	.616		22.9	13	SF	1	C				
HUAN	25	1406	1414	1430	S16	W16	.365		24.4	24	SN	1	C	1414	25	.2	D
HUAN	25	1415	1416	1420	S34	E66	.936		30.5	5	SN	2	C	1416	20	.2	D
BIGO	25	1417E	1417U	1421	S33	E64	.924		30.4	4D	SN	3	P	1417	80	1.9	
BIGO	25	1418E	1418	1431	S17	W14	.354		24.5	13D	SN	3	P	1418	40	.4	
HUAN	25	1604		1612	N14	W34	.603		23.1	8	SF	1	C	1606	15	.2	D
BIGO	25	1824	1826	1826D	S32	E64	.923		30.6	2D	SB	3	P	1826	50	1.2	
ISTA	26	0605		0615	S21	W12	.388		25.4	10	SN						E
BIGO	26	1614	1617	1631	S20	W19	.443		25.3	17	SB	2	C	1617	30	.3	E
BIGO	26	1632	1640	1656	S20	E56	.846		30.9	24	SB	3	C	1640	30	.6	E
HOLL	26	1857	1900	1932	N14	E33	.590		29.3	35	SB	3	C		144		FDE
BIGO	26	1903E	1903U	1903C	N16	E33	.601		29.3		SB	3	P	1903	90	1.1	
HOLL	26	1942	1943	1954	S21	E56	.842		31.0	12	SF	3	C		17		
HOLL	26	2047	2052	2105	N27	W60	.901		22.4	18	SN	3	C		45		DE
HOLL	26	2056	2056	2106D	S16	W24	.466		25.1	10D	SN	3	C		29		
MANI	27	0752E	0755U	0756D	S20	E47	.761		30.9	4D	SF	2	V		40		F
ISTA	27	0755		0815	S21	E45	.744		30.7	20	SF	7					D
BIGO	27	1453	1454	1502	N18	W14	.402		26.6	9	SN	3	C	1454	30	.3	
BIGO	27	1802	1804	1811	S21	E39	.680		30.7	9	SN	3	C	1804	30	.4	E
BIGO	27	1848	1850	1859	S21	E29	.566		30.0	11	SN	3	C	1850	30	.4	
BIGO	27	2032	2036	2112	N27	E30	.648		30.1	40	SF	3	C	2036	30	.4	
BIGO	27	2243	2244	2250	N14	E16	.375		29.1	7	SN	3	C	2244	20	.2	
ISTA	28	0741		0744	S35	E20	.624		29.8	3	SF						E
ISTA	28	0825		0827	S26	E08	.438		29.0	2	SF						D
BIGO	28	1522	1528	1539	N13	E90	1.000		4.4	17	SB	3	C	1528	90		
HOLL	28	1526	1527	1538	N16	E90	1.000		4.4	12	SB	2	C		0		
BIGO	28	1532	1536	1544	N16	E90	1.000		4.4	12	SB	3	C	1536	30		
BIGO	28	1552	1554	1615	S23	W63	.905		23.9	23	SN	3	P	1554	60	1.4	
HOLL	28	1553	1554	1559	S23	W63	.905		23.9	6	SN	3	C		20		
BIGO	28	1805	1817	1837	N11	E85	.997		4.1	32	SB	3	C	1817	50		
HOLL	28	1812	1819	1835	N13	E89	1.000		4.4	23	SB	3	C		0		
PALE	28	1816	1819	1827	N12	E77	.976		3.5	11	SB	3	C		24		FDE
HOLL	28	1934	1934	1941	S34	W10	.561		28.1	7	SN	3	C		21		
BIGO	28	1953	2032	2157	N12	E90	1.000		4.6	124	SN	3	P	2032	60		
BIGO	28	2223	2243	2325	S33	E20	.601		30.4	62	SB	3	C	2243	70	.8	
BIGO	28	2249	2251	2310	N25	W06	.451		28.5	21	SB	3	C	2251	100	1.0	
BIGO	28	2344	2354	2354D	N15	E80	.987		4.0	10D	SB	3	P	2354	150		
BIGO	29	0035	0037	0046	N18	E75	.971		3.6	13	SN	3	P	0037	100		
BIGO	29	0043	0044	0050	S33	E16	.578		30.2	7	SF	3	C	0044	20	.2	
ISTA	29	0620		0635	N14	W02	.262		29.1	15	SN	4					B
ISTA	29	0635		0635D	N23	W03	.410		29.0		SB						E
ISTA	29	0639		0638D	N16	E60	.987		4.3		SB						A
WENO	29	0743E		0823D	N14	E74	.965	16046	3.9	40D	1N		C		400		E
WENO	29	1219E	1227	1253D	S18	W37	.644	16032	26.7	34D	1N		C		300	4.1	E
BIGO	29	1443	1445	1501	N13	E70	.944		3.9	18	SB	3	C	1445	20		
BIGO	29	1711	1715	1729	N16	W11	.346		28.9	18	SF	3	C	1715	20	.2	
BIGO	29	1732	1737	1741	N13	E70	.944		4.0	9	SB	3	C	1737	50		
PALE	29	1733	1737	1759	N14	E68	.933		3.8	26	SB	3	C		35		F
BIGO	29	1745	1752	1804	N13	E70	.944		4.0	19	SB	3	C	1752	70		
BIGO	29	1959	2000	2012	N13	E70	.944		4.1	13	SB	3	C	2000	20		
BIGO	29	2111	2127	2136	N13	E67	.926		3.9	25	SB	3	C	2127	120		
HOLL	29	2111	2128	2134	N12	E66	.919		3.8	23	SB	3	C		107		FDE
PALE	29	2119E	2129U	2136	N14	E66	.921		3.8	18D	SB	3	C		101		F
BIGO	30	0024	0029	0037	N24	E74	.969		4.6	13	SF	3	C	0029	20		
BIGO	30	0107	0108	0110	S35	E09	.575		30.7	3	SF	3	C	0108	20	.2	G
BIGO	30	1457	1458	1505	N19	E90	1.000		6.4	8	SN	3	C	1458	30		
BIGO	30	1617	1618	1624	N19	E90	1.000		6.4	7	SN	3	C	1618	30		
BIGO	30	1710	1714	1735	N19	E90	1.000		6.5	25	SN	3	C	1714	20		
BIGO	30	2316	2316	2319	N19	E90	1.000		6.7	3	SN	3	C	2316	20		
MCMA	31	1308	1328	1345	N24	W17	.497	16041	30.3	37	SN		C	1328	75	.9	E
PALE	31	1858E	1858U	1934D	N19	E78	.981		6.6	36D	SB	1	C		30		DE

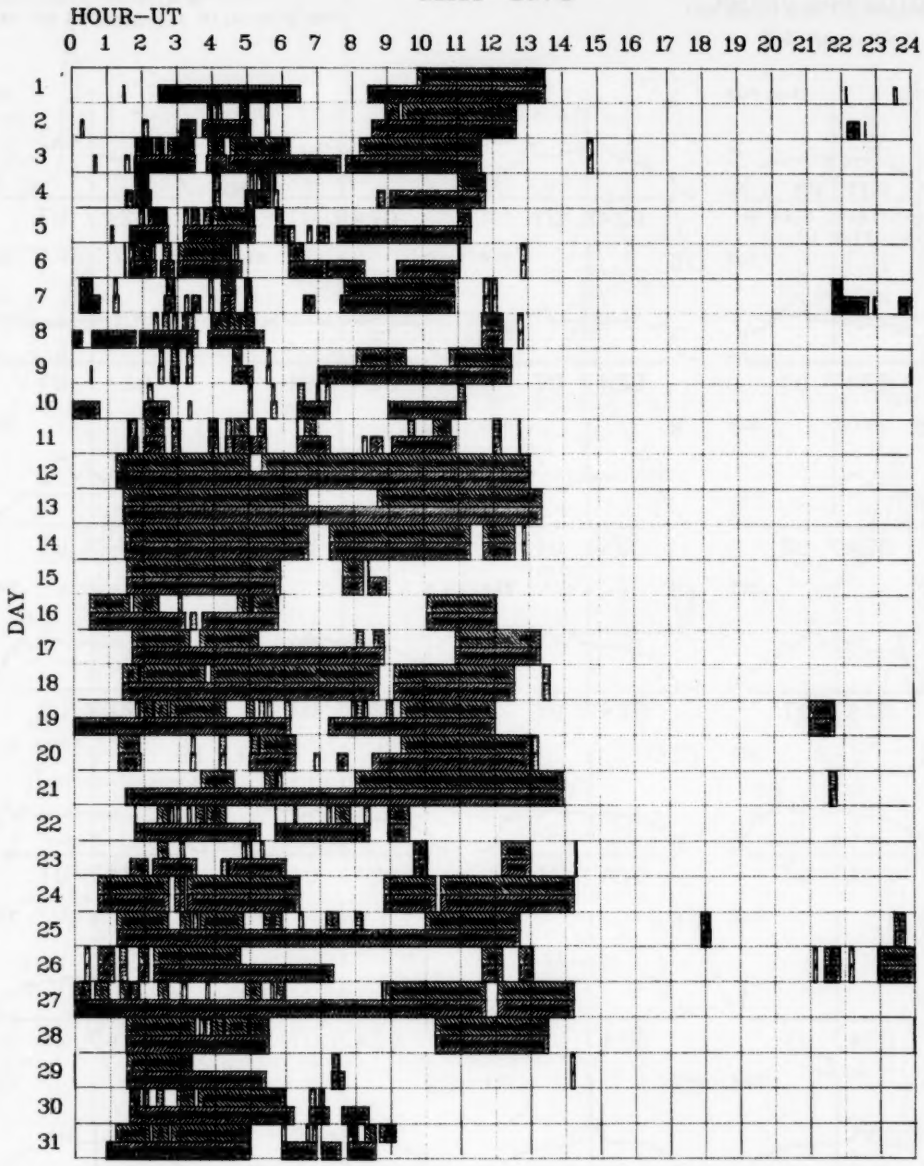
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MAY 1979



Observatories included in total patrol:

Athenes	Bucharest	Istanboul	Palehua	Upice
Berne	Holloman	Manila	Ramey	Wendelstein
Big Bear	Huancayo	McMath-Hulbert		

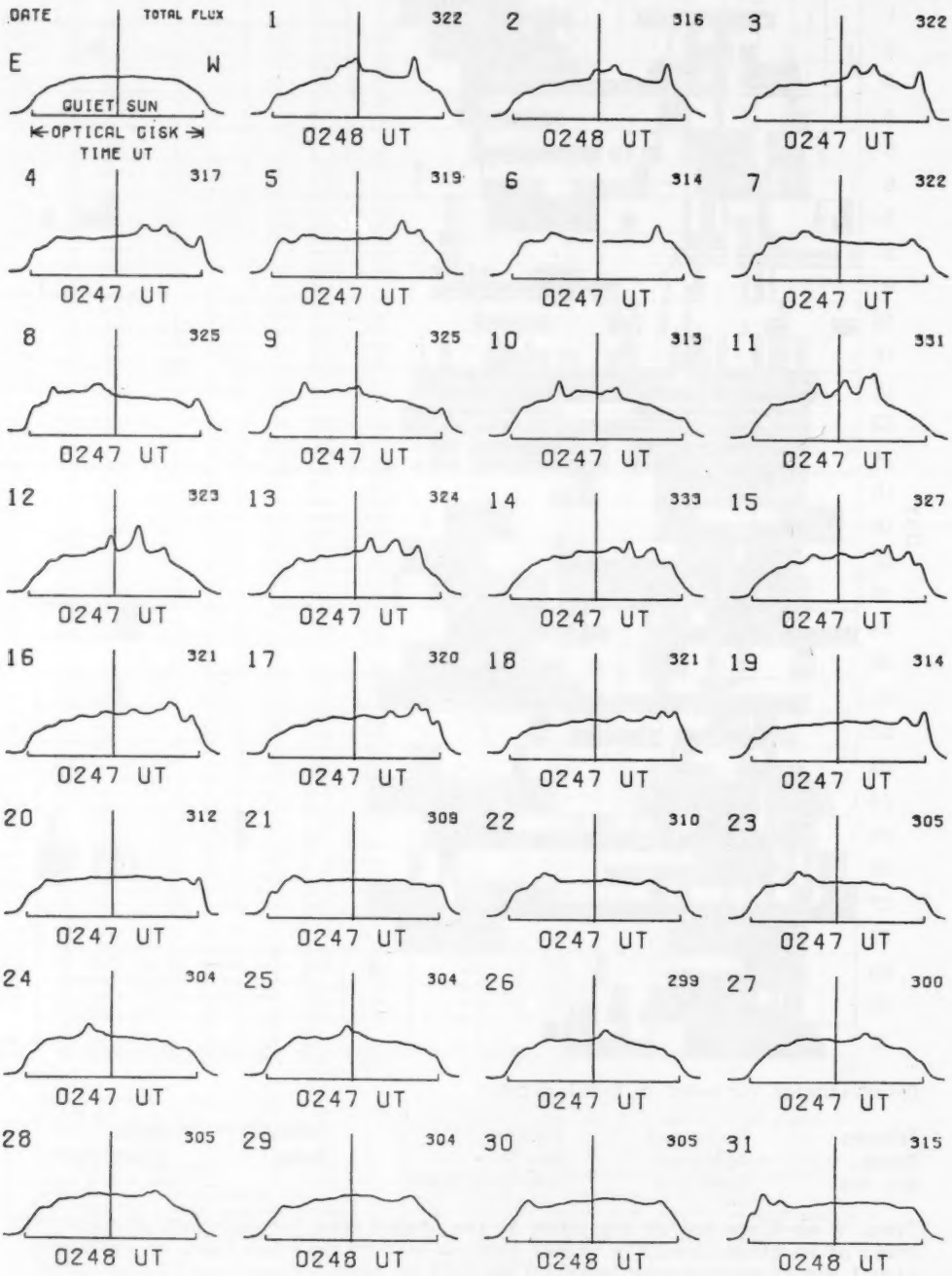
Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

EAST-WEST SOLAR SCANS

MAY 1979

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

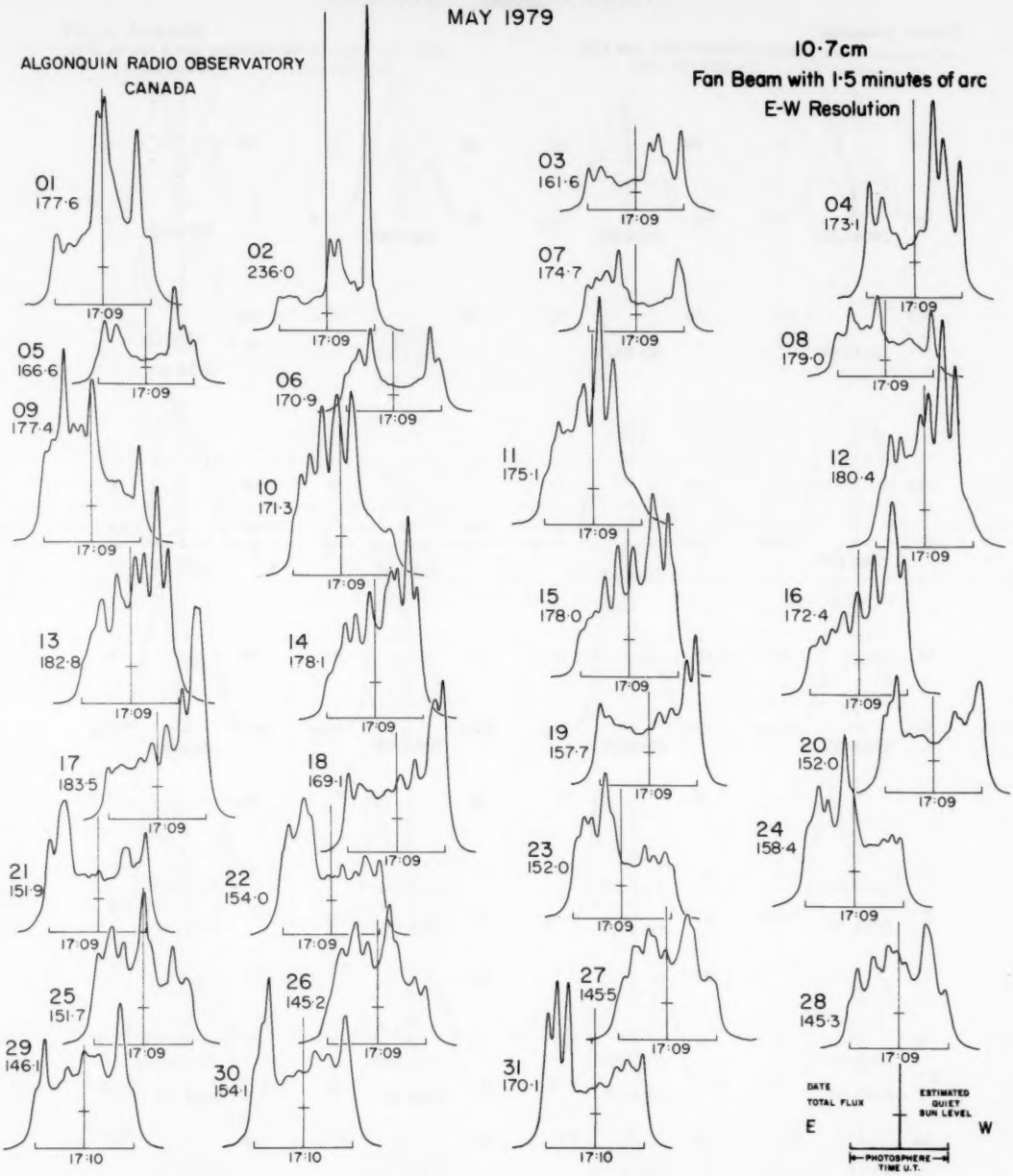


EAST-WEST SOLAR SCANS

MAY 1979

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7cm
Fan Beam with 1·5 minutes of arc
E-W Resolution

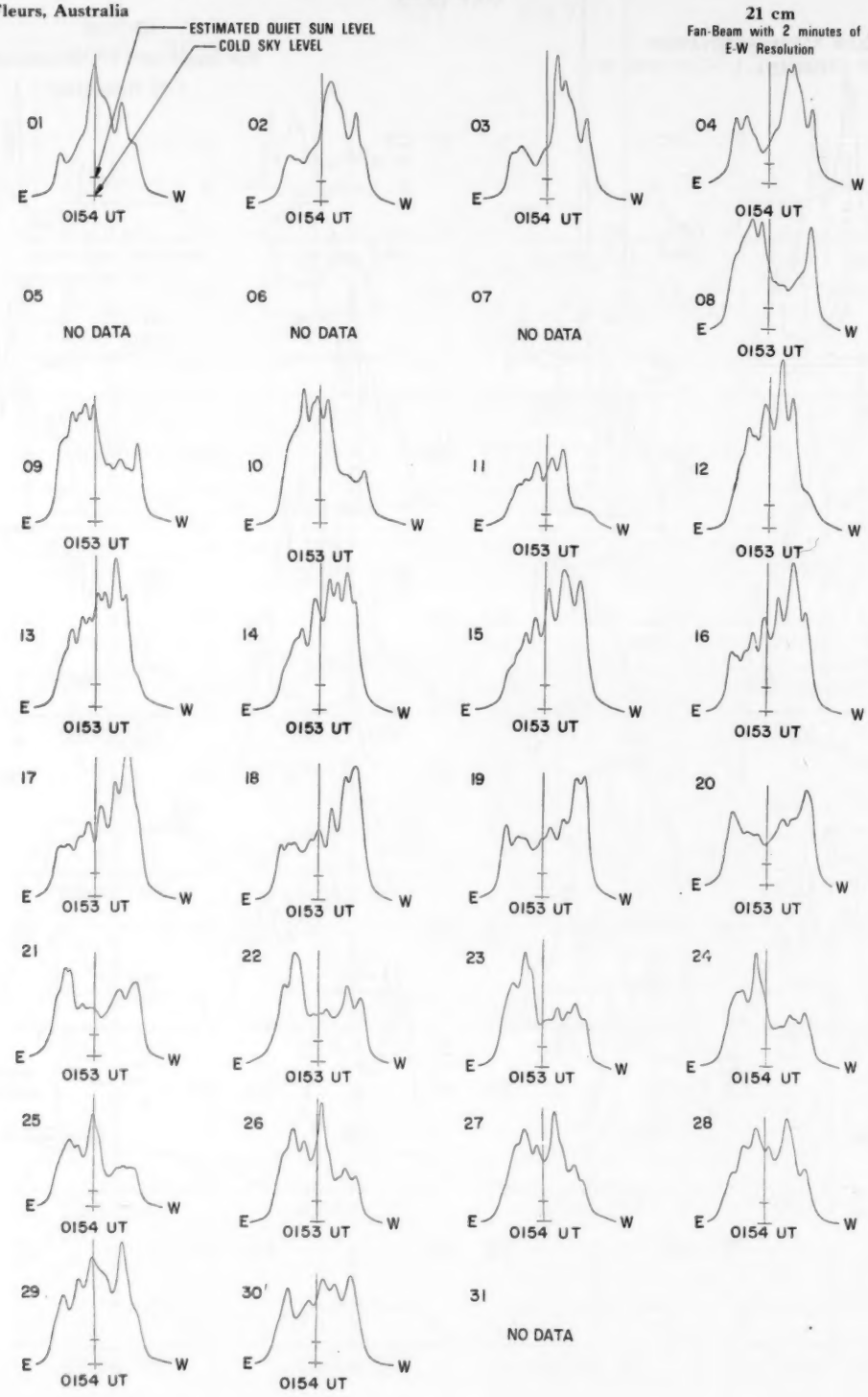


EAST-WEST SOLAR SCANS

MAY 1979

Fleurs, Australia

21 cm
Fan-Beam with 2 minutes of arc
E-W Resolution

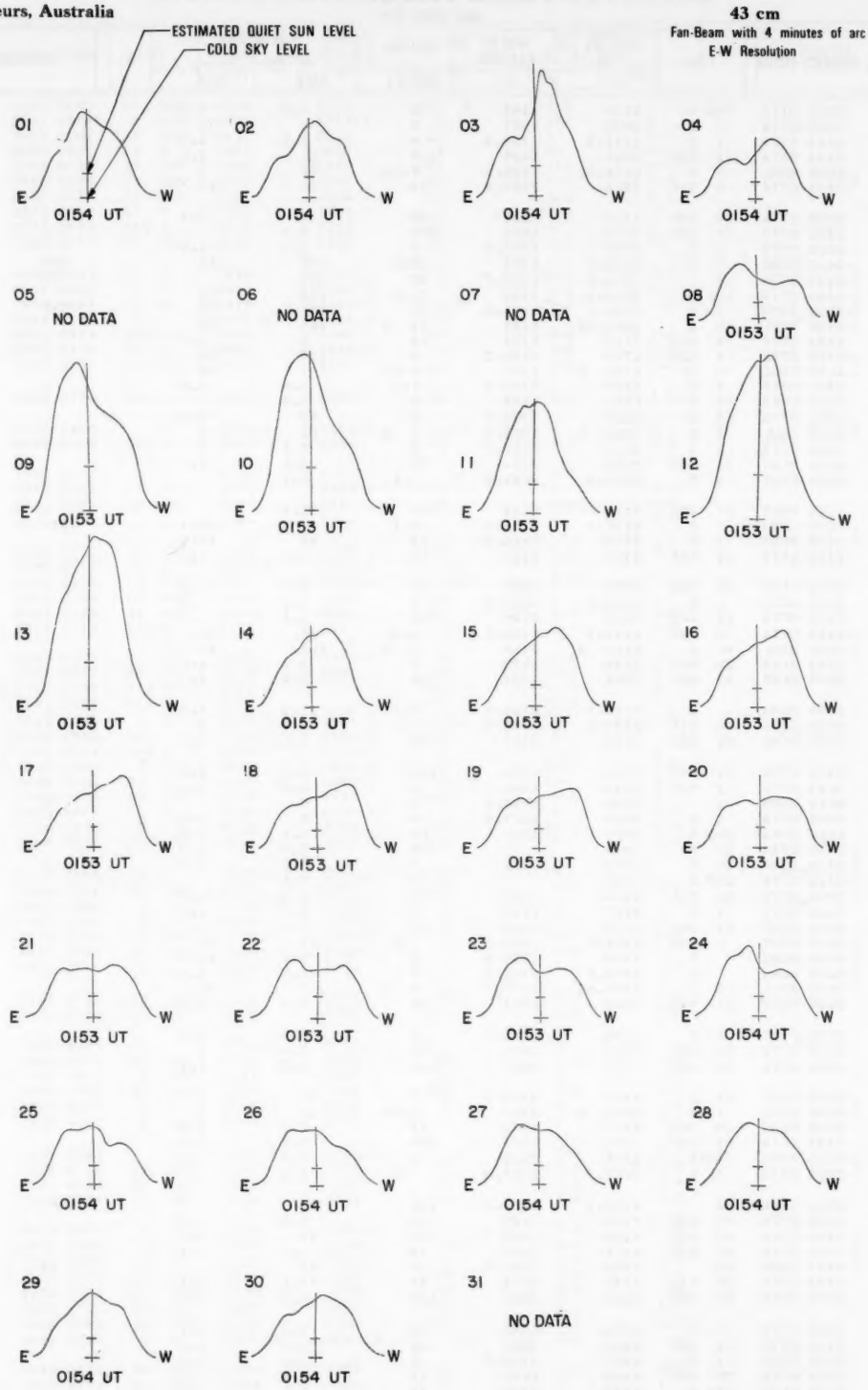


EAST-WEST SOLAR SCANS

MAY 1979

Fleurs, Australia

43 cm
Fan-Beam with 4 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22}Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	2800	OTTA	24C R	1125	1145	20	4.8	2.4		
	2800	OTTA	1 S	1506	1507	2	2	1		
	2800	OTTA	1 S	1737.5	1738.8	3	2.6	1.3		
	2800	OTTA	21 GRF	1915	1935	215	11	3.6		
	2695	BOUL	4 SF	2024.5E	2026.5	5.5D	27	9		
	2800	OTTA	4 S/F	2024	2026.4	12	24	10		
2	2800	OTTA	20 GRF	1210	1230	85	7	5.4		
	2800	OTTA	21 GRF	1430	1610	290	7.8			
	2800	OTTA	1 S	1525	1525.5	2	3.8	1.9		
	8800	SGMR	3 S	1650.5	1700	32.4	369	111		SWF
	8400	BERN	46	1650.6	1659.7	30	334			7R
	2800	OTTA	46F C	1650.8	1700	21.2	188	58		
	2695	SGMR	3 S	1651.2	1700.3	32	195	59		SWF
	2695	BOUL	45 C	1651.5E	1701	20 D	165	55		
	2800	OTTA	30 PBI	1712	1712	78	9	4.5		
	2800	OTTA	4 S/F	1713	1716.2	8	120	33		
	2695	BOUL	4 SF	1715 E	1717	5.5D	117	39		
	2800	OTTA	1 S	1722	1722.3	1.2	3.6	1.8		
	2800	OTTA	40 F	1737	1738	4	4.6			
	2800	OTTA	3 S	1925	1925.9	8	52	6.8		
	2695	BOUL	3 S	1926 E	1926.5	1 D	25	8		
	2800	OTTA	1 S	2114	2114.5	2	8.6	3		
	2695	PENT	21 GRF	2250	2254	30	3.4	1.7		
	2695	PENT	8 S	2253.6	2253.6	.1	6.2			
3	2695	PENT	21 GRF	0100	0140	50 D	20.6			
	2695	MANI	S	0124.7	0128.7	6.8	3 31	10.3		III
	2695	PENT	3 S	0124	0126.8	13	47	18.4		
	2800	OTTA	20 GRF	2000	2010	50	3.4	1.8		
4	2800	OTTA	20 GRF	1850	1925	50	2.8	1.4		
	2800	OTTA	1 S	1948.5	1949.5	3	1.8	.9		
	2800	OTTA	20 GRF	2010	2025	40	1.8	.9		
	2800	OTTA	4 S/F	2133.7	2134.5	4.3	85	32		
	2695	BOUL	45 C	2134 E	2135	3 D	141	47		
	2800	OTTA	29 PBI	2138	2138	8	3.6	1.2		
	2695	PENT	20 GRF	2240	2330	120	3.4	1.7		
5	2695	MANI	S	0214.7	0214.3	2.3	3 11.9	7.9		
	2800	OTTA	4 S/F	2030.2	2030.5	1.5	10.8	3		
	2695	PENT	20 GRF	2240	2257	50	3.4	1.7		
6	2800	OTTA	21 GRF	1540	1644	190	4.6	2.4		
	2800	OTTA	2 S/F	1543	1544	3	2.8	1.4		
	8400	BERN	1	1554	1555.2	4	9			9L
	2800	OTTA	1 S	1615	1615.5	6	4	1.6		
	2800	OTTA	240 R	1925	1943	18	4.4	2.2		
	2800	OTTA	27 RF	1945		135	2.8	2.2		
	2800	OTTA	24 R	1945	1952	7	2.8	1.4		
	2800	OTTA	24P R	1952		73	2.8			
	2800	OTTA	26 FAL	2105	2100	55	-2.8	-1.4		
	2800	OTTA	1 S	2207	2208	2	6.2	2.9		
	2695	PENT	20 GRF	2230	2300	50	2	1		
	2695	PENT	4 S/F	2334.5	2336.1	7.5	100	30		
	2695	MANI	S	2335	2335.8	6	3 76.5	25.5		
	8800	MANI	S	2335.2	2336.3	3	3 24.5	8.2		
	2695	BOUL	45 C	2335.5E	2336.5	6 D	117	39		
	2695	PENT	29 PBI	2342	2342	65	2.8	1.6		
7	2695	PENT	1 S	1458	1458.5	2	3.6	1.8		
	2800	OTTA	20 GRF	1830	1838	130	3.4	2		
	2800	OTTA	20 GRF	2130	2207	125	3.8	1.9		
8	2695	PENT	45 C	0046	0048.3	7	28	7		
	2695	BOUL	3 S	0046 E	0047	2.5D	16	5		
	2695	PENT	29 PBI	0053	0053	27	3.6	1.8		
	2800	OTTA	22 GRF	1255	1440	365	7.6	4.5		
	2800	OTTA	240AR	2025	2030	5	3.2	1.6		
	2800	OTTA	8 S	2027.2	2027.9	.8	8.6			
9	8400	BERN	20	0720.1	0839.7	180	21			OPR
	2800	OTTA	20 GRF	1120	1128	20	5.8	1.9		
	2800	OTTA	23 GRF	1200	1423	250	19	9.5		
	2800	OTTA	20 GRF	1215	1220	30	4.2	2.1		
	8400	BERN	20	1216	1222.5	32	21			4R
	2800	OTTA	26 FAL	1735	1810	35	-3.4	-1.7		
	2800	OTTA	22 GRF	2010	2030	100	5.4	1.8		
10	2800	OTTA	1 S	1650	1654	10	2.2	1.1		
	2800	OTTA	21 GRF	2000	2023	60	3.2	1.6		
	2695	PENT	1 S	2009	2009.5	1	3.6	1.8		
	2800	OTTA	22 GRF	2110	2130	33	4.6	1.6		
	2695	PENT	240 R	2230	2305	35	5	2.5		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
11	2695	PENT	21 GRF	0000	0120	110 D	18.4			
	2695	PENT	2 S/F	0031	0003.3	8	3.8	3		
	2695	PENT	20 GRF	0036	0041	12	11	5.5		
	2695	PENT	1 S	0053	0056	9	8	4		
	2800	OTTA	20 GRF	1240	1255	40	3.6	1.8		
	2800	OTTA	20 GRF	1400	1424	95	4.4	2.2		
	2800	OTTA	20 GRF	1614	1655	45	3.4	1.7		
	2800	OTTA	40 F	1742	1742.5	1	12.4			
	2800	OTTA	240 R	2017	2110	53	6	3		
	2800	OTTA	20 GRF	2120	2122	17	3.4	1.7		
12	2695	PENT	3 S	0033	0034	5	21.8	5.4		
	2695	PENT	1 S	0045	0045.7	1	2.2	1.1		
	2695	PENT	1 S	0110	0110.7	1.5	3.6	1.8		
	8400	BERN	3	0935.1	0936.3	5	20			0
	2800	OTTA	240 R	1240	1330	50	3.6	1.8		
	2800	OTTA	1 S	1619	1619.5	3	2.6	1.3		
	2800	OTTA	240 R	2123	2147	24	2.4	1.2		
13	2800	OTTA	240 R	1625	1645	20	2.4	1.2		
14	2695	MANI	S	0005.5	0006.5	1.9	3 6	2		
	2695	PENT	240 R	2245	2300	15	3.2	1.6		
15	2800	OTTA	8 S	1451.7	1451.7	.1	3.8			
	2800	OTTA	3 S	2218	2220.3	4	16	5.4		
	2800	OTTA	30 PBI	2222	2222	68	3.6	1.8		
	2695	PENT	1 S	2316	2317	2	3	1.5		
16	2800	OTTA	20 GRF	1240	1430	220	5.8	2.9		
	2800	OTTA	8 S	1804.2	1804.2	.1	5			
	2800	OTTA	2 S/F	1827	1827.4	1.4	7.8	3		
	2800	OTTA	20 GRF	1840	1900	40	3	1.5		
	2800	OTTA	20 GRF	1955	2025	65	2.4	1.2		
	2800	OTTA	240 R	2127	2137	10	2.4	1.2		
17	2695	PENT	4 S/F	0117	0120.5	6	11.6	3.8		
	2800	OTTA	24 R	1410	1540	90	10.6	5		
	2800	OTTA	27A RF	1410		490	10.6	8.2		
	2800	OTTA	24P R	1540		270	10.6			
	8800	SGMR	3 S	1637.5	1644.2	11.6	108	32.4		
	8400	BERN	46	1639.7	1644.1	20	78			OPR
	2800	OTTA	46F C	1640	1641.2	8	25.2	5		
	2695	SGMR	3 S	1641	1641.6	9	15.5	4.6		
	2695	BOUL	45 C	1641 E	1642	9 D	16	5		
	2800	OTTA	21 GRF	1720	1745	100	4.6	2		
	2800	OTTA	1 S	1736	1737.8	3	5	2.4		
	2800	OTTA	26 FAL	2010	2220	130	-10.6	-5.3		
	2695	PENT	20 GRF	2250	2410	170	5	2.5		
18	8400	BERN	20	0535.4	0544.8	15	15			OPR
	2800	OTTA	21 GRF	1534	1550	115	6.4	3.2		
	8400	BERN	1	1538.9	1539.6	3	12			OPR
	2800	OTTA	3 S	1539	1539.8	3	18	8		
	2800	OTTA	4 S/F	1544.1	1544.2	1	11.6	5.8		
	2800	OTTA	20 GRF	1925	1928.5	25	3.6	1.8		
	2800	OTTA	1 S	2153	2154	2	1.8	.9		
19	2800	OTTA	20 GRF	2035	2110	80	6.6	3.6		
	2800	OTTA	20 GRF	2225	2300	100	6.6	3.4		
20	8400	BERN	4	0731.2	0731.7	5	19			32L
	2800	OTTA	21 GRF	1105	1130	60	4.8	2.6		
	2800	OTTA	2 S/F	1107	1113	8	6	3.2		
	2800	OTTA	20 GRF	1310	1340	150	4.2	2.4		
	2800	OTTA	1 S	2111.5	2112	1	3	1.2		
	2695	PENT	2 S/F	2341	2346	7	6	2.9		
21	2695	MANI	S	0636.3	0636.5	.3	1 6.3	2.1		
	2800	OTTA	26 FAL	1240	1255	15	-3.6	-1.8		
	2800	OTTA	20 GRF	1445	1455	65	2.4	1.4		
	2800	OTTA	20 GRF	2010	2055	150	3.6	2.2		
22	2800	OTTA	4 S/F	1112	1114.8	4	73.8	21.6		
	2695	SGMR	3 S	1113	1114.8	5.7	73.9	7.4		
	8800	SGMR	3 S	1113	1115.4	4	11.8	1.2		
	2800	OTTA	29 PBI	1116	1116	104	8.6	6.9		
	2800	OTTA	20 GRF	1450	1535	90	1.8	.9		
	2800	OTTA	20 GRF	1635	1840	255	3	1.5		
	2800	OTTA	21 GRF	2125	2240	185	2.6	1.3		
	2695	PENT	8 S	2347.9	2347.9	.1	3.6			
23	2800	OTTA	20 GRF	1130	1155	85	3.2	1.8		
	2800	OTTA	21 GRF	1348	1430	57	2	1		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1979

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2695	PENT	1 S	1406	1406.6	2	3.6	1.6		
	2800	OTTA	26 FAL	2035	2040	5	-2.2	-1.1		
	2695	PENT	27 RF	2110		225	2.8	2.4		
	2695	PENT	24 R	2110	2130	20	2.8	1.4		
	2695	PENT	24P R	2130	2410	160	2.8			
	2695	PENT	26 FAL	2410	2455	45	-2.8	-1.4		
24	2800	OTTA	21 GRF	1258	1303	65	2	1		
	8800	SGMR	3 S	1332.8	1333.8	2	15	3		SWF
	2800	OTTA	1A S	1332	1333	3	5.4	2.7		
	2695	SGMR	3 S	1333.2	1333.3	1.6	13	2.5		SWF
	2800	OTTA	8 S	1333	1333	.3	19.4			
	2800	OTTA	24 R	1505	1520	15	3.2	1.4		
	2800	OTTA	27A RF	1505		180	3.2	2.9		
	2800	OTTA	24P R	1520		144	3.2			
	2800	OTTA	1 S	1740	1741.2	2	6.4	3		
	2800	OTTA	26 FAL	1744	1805	21	-3.2	-1.6		
	2800	OTTA	20 GRF	2130	2240	180	3.6	1.6		
25	2800	OTTA	20 GRF	1055	1205	185	4.8	2.4		
	2800	OTTA	20 GRF	1404	1416	70	2	1		
	2800	OTTA	20 GRF	1600	1640	125	2.8	1.4		
	2800	OTTA	8 S	2208.6	2208.6	.1	19.4			
26	2800	OTTA	1 S	1857	1858.3	3	4.2	2.1		
	2800	OTTA	20 GRF	2040	2105	45	2.2	1.1		
27	2800	OTTA	21 GRF	1910	2020	130	2.6	1.4		
	2800	OTTA	1 S	1914.6	1915	2.5	3.8	1.4		
28	2800	OTTA	20 GRF	1112	1140	90	2.8	1.4		
	2800	OTTA	20 GRF	2220	2255	110	5	2.6		
29	2800	OTTA	2 S/F	2125.5	2126.7	3	4			
30	2800	OTTA	20 GRF	1230	1340	170	3.4	1.8		
	2800	OTTA	24OAR	1640	1710	30	2.8	1.4		
	2800	OTTA	8 S	1653	1653	.3	2.2			
	2800	OTTA	24O R	1910	1920	10	2.4	1.2		
31	2800	OTTA	20 GRF	1130	1143	60	4.2	2.1		
	2800	OTTA	20 GRF	1305	1330	50	3.6	1.8		
	2800	OTTA	24C R	1410	1500	50	3.2	1.6		
	2800	OTTA	24O R	1635	1700	25	2.2	1.1		
	2800	OTTA	20 GRF	1850	1857	70	1.6	1.1		
	2800	OTTA	20 GRF	2110	2135	110	2.2	1.6		
	2695	PENT	24O R	2310	2330	20	2.2	1.1		

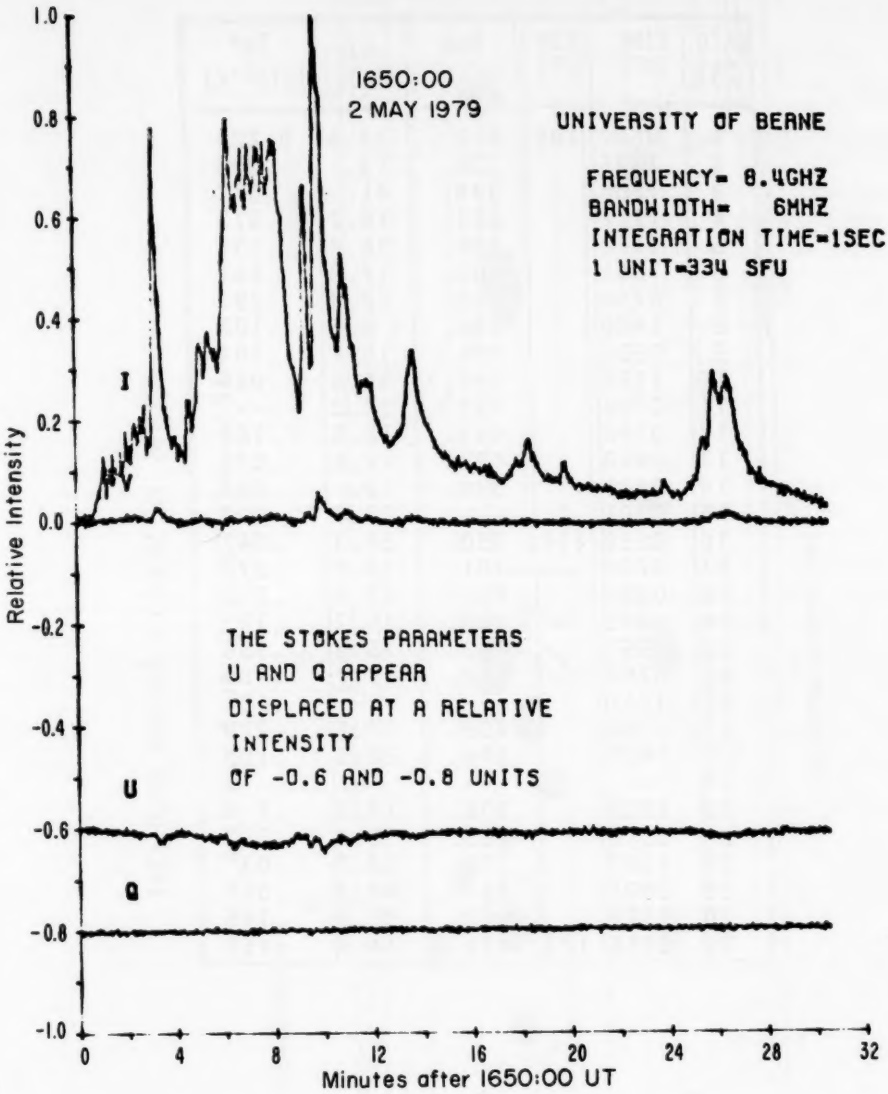
Observatories:

BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURST
MAY 1979



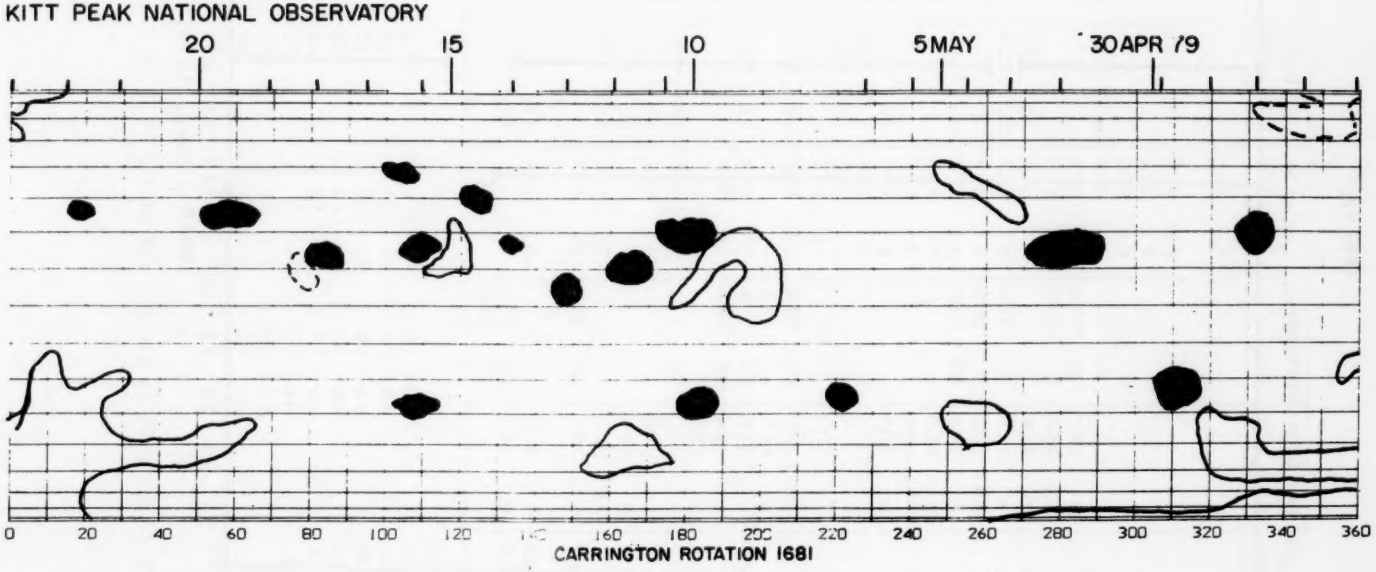
PIONEER XII

MAY 1979

DATE May 79	TIME (UT)	ESV (°)	U_{H+} (Km/sec)	N_{H+} (H^+/CC)	T_{H^+} ($\times 10^{5}$°K)
1	0602	105.	518.	13.5	0.224
2	1326		338.	19.	.098
3	1206		339.	41.	.077
4	1222		323.	16.2	.073
5	1120		295.	36.8	.036
6	1051		400.	17.2	.101
7	0754		490.	22.3	.293
8	1400		472.	9.5	.182
9	0501		484.	15.2	.384
10	1155		596.	85.6	.044
11	0704		452.	26.3	----
12	0746		449.	15.8	.188
13	0858		433.	77.6	.076
14	0601		334.	19.	.084
15	1301		---	23.1	.082
16	0839	114.	330.	34.3	.041
17	0759		401.	17.8	.072
18	0900		431.	23.4	.242
19	0842		400.	15.7	.12
20	0851		452.	15.9	.155
21	0757		412.	17.7	.105
22	1257		---	---	.13
23	1100		499.	17.6	.229
24	1455		346.	22.5	.108
25	---		---	---	----
26	1205		338.	13.8	.1
27	0912		299.	32.4	.094
28	1307		355.	23.2	.03
29	0901		417.	42.3	.051
30	1227		503.	31.3	.145
31	0658	123.	444.	14.9	.151

HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1681

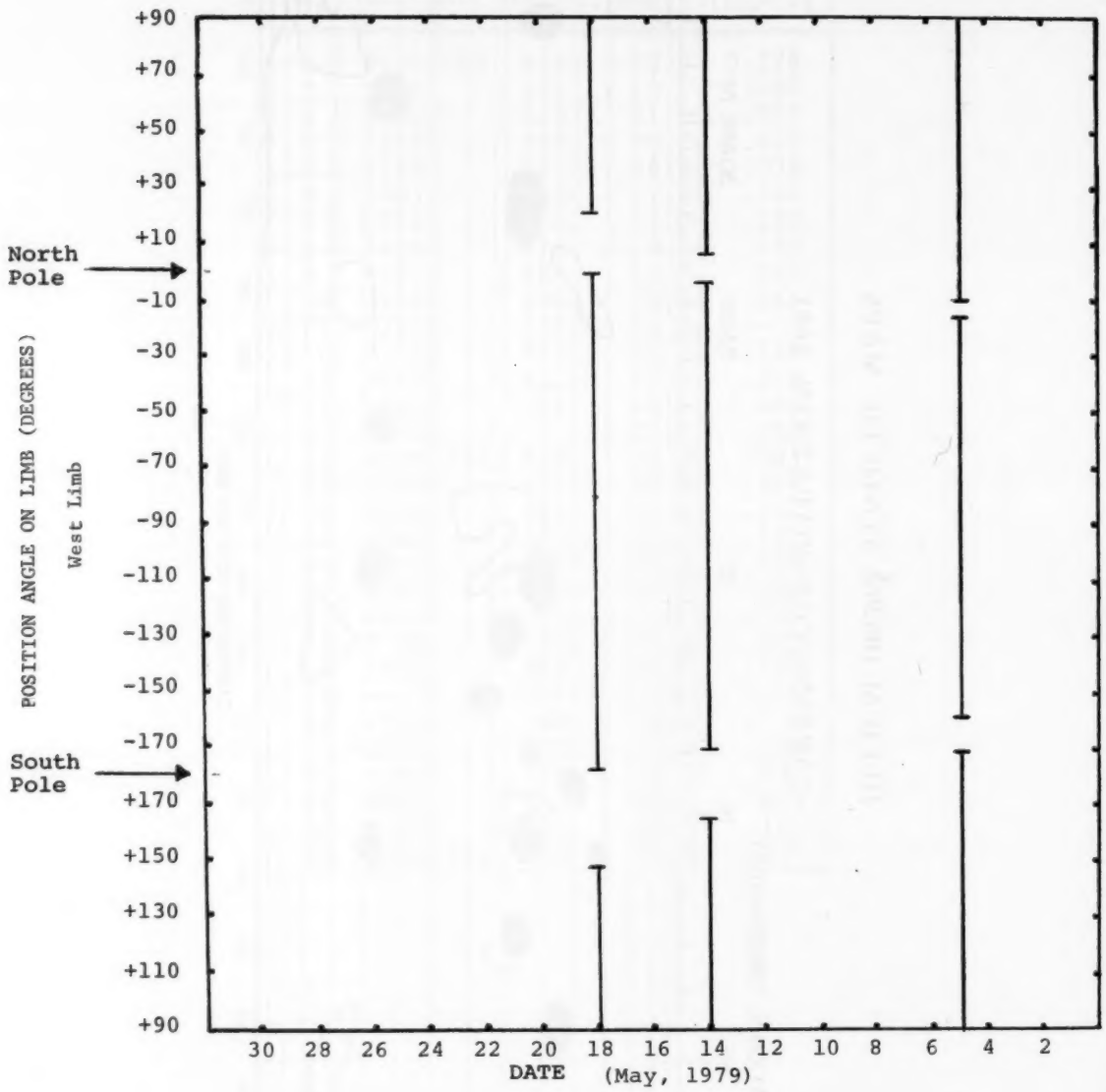


CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

MAY 1979

Big Bear Solar Observatory



SOLAR WIND

Interplanetary Scintillations

MAY 1979

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	591	64					379	63							440	40
2	385	37	334	6	292	7									453	25
3			364	7	231	29	374	10							331	19
3							312	19								
4	399	86	378	5			329	13							366	5
5	410	18	374	5	372	46	379	6							394	16
6	372	26	371	6			430	8	427	62	396	4			404	19
7	374	66					391	8	354	8	484	68			397	29
8	347	25	457	34	535	22	370	9			439	55			398	20
9	457	5	374	6	419	68	443	16	401	5	451	4			377	11
10	543	153	372	12			446	15	290	9	382	44			464	22
11	306	30	461	89			398	16	387	12	496	4			473	38
12	326	27	372	23			484	27			506	4			453	36
13	465	11	512	41			464	8			594	79			446	46
14	381	6	383	8	324	16	391	6			489	16			543	70
15	364	4	368	4	388	7	407	6							468	10
16	317	4	476	10	489	44	394	5								
17	339	7	478	10			414	30							331	16
18	261	3	506	6	374	64	524	10	347	25	345	51			390	79
19	290	11	481	7			465	10	447	74	430	6			407	16
20	345	8	440	33	369	28	499	20	431	23	446	4			451	14
21	429	4	466	6			598	37	458	25	449	11			502	88
22	465	22	383	11			603	8			472	11			588	7
23	410	11	333	12	377	96	526	8	517	51						
24			339	5	486	57	554	11			506	22				
25	383	5			294	8					587	5			396	25
26	367	7	387	15	447	102	531	32			558	84			448	81
27	350	5	502	8			591	22	285	76	489	117	450	17		
28			532	-87												
29			495	37	303	31	411	15			349	9	382	33	345	5
30	362	4	552	41	242	62			379	32	544	18	514	84	412	40
31	475	30							344	11					323	67

MAY	5 UT	LAT	DIST	DLON	15 UT	LAT	DIST	DLON	25 UT	LAT	DIST	DLON
3C48	19.	57.	0.40	32.	18.	44.	0.48	44.	18.	34.	0.59	43.
3C144	23.	-8.	0.63	-51.	22.	-9.	0.49	-61.	22.	-10.	0.33	-70.
3C147	22.	17.	0.74	-37.	21.	25.	0.65	-43.	21.	35.	0.56	-45.
3C161	0.	-23.	0.85	-26.	24.	-29.	0.77	-31.	23.	-36.	0.68	-34.
3C237	4.	-6.	1.12	-15.	3.	-5.	1.07	-16.	2.	-4.	1.03	-17.
3C273	6.	-3.	1.25	-9.	5.	-2.	1.22	-11.	4.	-1.	1.18	-13.
3C298	8.	0.	1.28	-4.	7.	1.	1.27	-6.	6.	2.	1.25	-8.
3C459	16.	6.	0.81	34.	16.	4.	0,90	25.	15.	3.	0.96	17.

Note: 3C 161 observed at 0 hr. U.T. before May 3rd and at 23 hr. U.T. after May 3rd.

INFERRED IP MAGNETIC FIELD

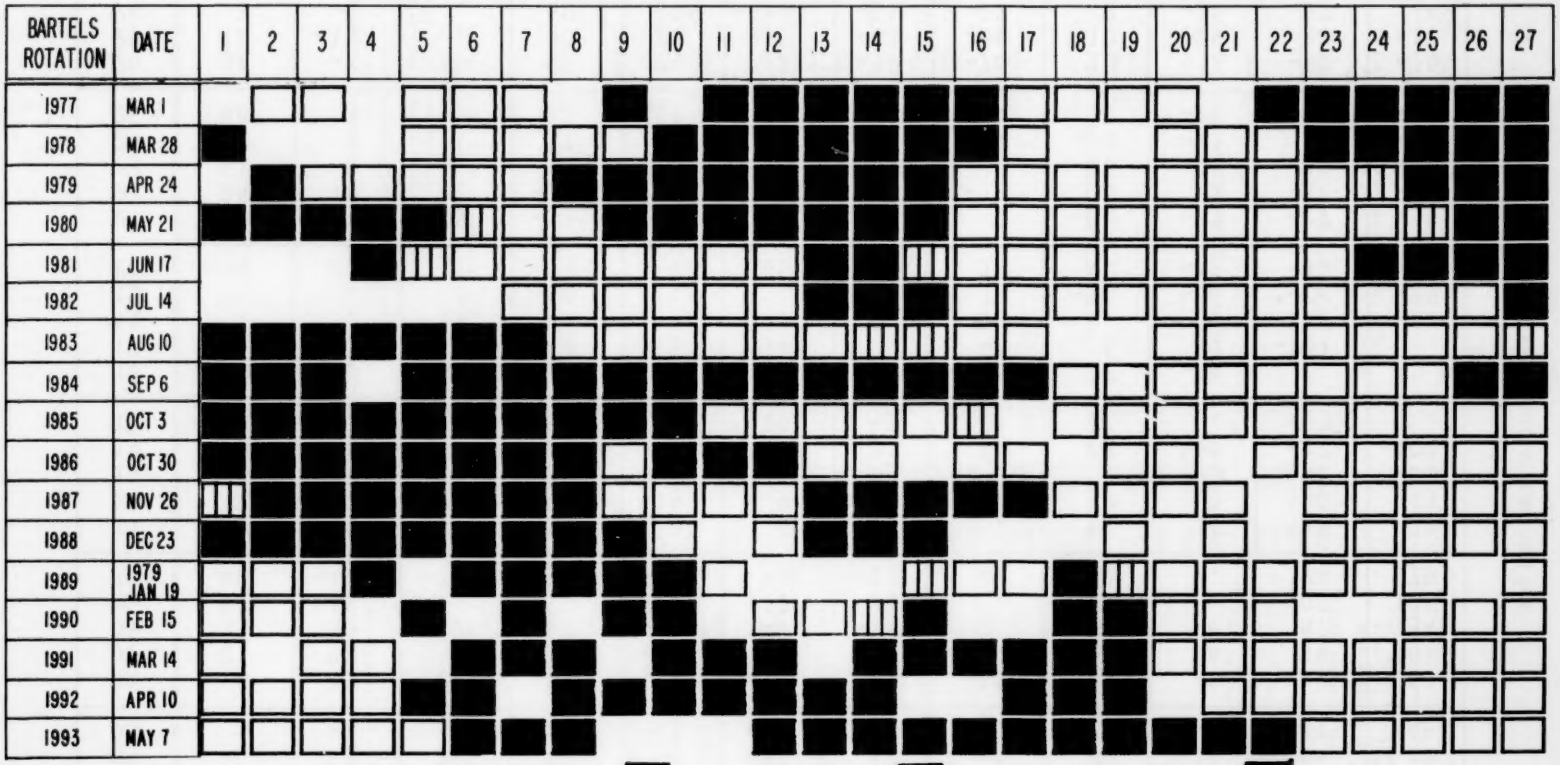
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1977	MAR 6	TA		-					AT			T*	*					TA			AT AT		AT	AT	*	TA		
1978	APR 2							*	-		AT											AT AT						
1979	APR 29		TA		*		TA	AT AT	TA		-	-	T*							TA TA			AT					
1980	MAY 26				TA		AT	AT				-				AT	TA				-					-	-	-
1981	JUN 22	TA					A*					-	TA	TA TA		AT			*				*	AT	AT -		AT	
1982	JUL 19									TA							-			TA				AT	AT *		TA	
1983	AUG 15					TA			AT		AT AT			AT	TA						A*							TA	
1984	SEP 11			TA		AT				TA	T*						A*		-				-			A*	TA -	
1985	OCT 8	*	TA		T*		AT				-	-	-						TA	TA -		AT		-				
1986	NOV 4		-				-	AT -	-		-	-						*	AT	-		AT	AT	AT	AT			
1987	DEC 1	AT	AT	-					-		-	TA	-	-	AT -	-	AT -	TA -	-	A*	-		*		-	AT -	-	
1988	DEC 28		-	-	-	-			-	AT *			TA	TA T*		-	AT -	-	TA			-	TA -			-	TA	-
1989	1979 JAN 24		-			*		TA			TA		TA							*					-		AT	
1990	FEB 20		TA	-	TA -		TA			-	TA -	TA	TA			TA A*		TA A*		TA A*				A*				
1991	MAR 19		AT			AT		T*						*	-	-	-	-	TA -		AT	T*	TA	TA -	A*	-		TA A*
1992	APR 15		A*	TA T*	AT			TA TA			T*						TA	*	-	-	AT -	TA			A*		-	TA
1993	MAY 12									-	-		AT			*		TA			AT AT							

▩ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1978							1979				
DAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY
01	-28	1	40	26	-11	-18	-72	11	.	-36	-4	26
02	-22	13	39	32	-20	-21	-39	.	-1	.	16	13
03	-12	15	42	15	-14	-36	-7	15	30	.	57	6
04	-5	18	39	18	-8	-28	17	-6	27	-24	44	10
05	6	24	31	2	-3	-19	19	-25	-13	-6	11	45
06	5	43	29	-24	-7	-12	9	-26	1	46	9	68
07	21	42	30	-12	-20	3	5	.	50	64	14	101
08	33	36	17	-7	-29	-6	-15	.	88	56	67	134
09	41	16	-11	.	-37	-17	-26	.	59	.	102	126
10	40	-11	-10	-35	-29	-3	-37	27	39	.	124	75
11	23	-17	-15	-34	-32	5	-19	.	40	21	138	31
12	12	-12	-22	-42	-14	9	-16	27	30	63	100	-13
13	8	-38	-33	-36	2	.	13	.	.	100	51	-66
14	0	.	-43	-27	7	16	31	45	78	106	-12	-104
15	-24	.	-31	-26	8	20	43	21	62	.	-51	.
16	-38	.	-9	-36	9	.	65	36	27	24	.	.
17	.	.	5	-48	5	34	.	48	6	45	-121	.
18	.	.	13	-44	-1	42	59	59	.	.	-117	-27
19	.	.	7	-50	.	.	30	37	-52	-56	-72	-29
20	-16	23	7	-33	4	55	18	18	.	-81	-40	-36
21	0	21	5	-21	3	35	32	9	-86	-81	-27	-34
22	24	16	4	-14	19	40	27	-15	.	.	-32	-43
23	51	6	-1	5	20	28	-3	.	-80	-51	-40	-56
24	52	3	1	31	25	27	-20	-54	-52	-41	.	-51
25	48	3	5	43	23	18	-26	-64	.	-28	.	-30
26	30	-7	18	42	24	2	-32	-70	19	.	-99	-16
27	12	-13	.	40	29	-17	-63	-64	10	-29	-92	-17
28	3	-6	.	29	30	-48	-51	-27	0	-36	-57	-4
29	-5	14	41	15	17	-61	-36	12		-12	.	19
30	-10	27	41	2	-3	-65	-22	.		-26	3	10
31		33	35		-16		-21	.		-28		9

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

MAY 1979

DATE	ONSET TIME	DIRECTION	COMMENTS
01	0345	East	Strong SS
	0930	West	
			Field unsettled throughout network; active north of Inuvik after 1730 UT; no distinct SS activity.
02	0025	East	Slow onset; repeated minor injections; SS recovery at 0340 UT.
	0615	West	
03	0115	East	
	1210	West	Weak SS
	1305	West	
			Field unsettled after 1800 UT; no distinctive SS activity.
04	2330	East	
05	0850	West	Weak SS
	0910	West	Weak SS
	1005	West	Weak SS
06			Field slightly unsettled; no distinct SS activity.
07	0925	West	
	1145	West	
	1800		Slow onset
08	0645	East	
09	0520	East	1st of double onset
	0540	East	2nd of double onset
10			Field unsettled after 1300 UT; no distinct SS activity.
11	0640	≈ center	
	0830		1st of double onset, Alaska only
	0855		2nd of double onset, Alaska only
	1310		1st of multiple onset
	1400		2nd of multiple onset
	1440		3rd of multiple onset
	1535		4th of multiple onset
	1615		5th of multiple onset
	2100		
	2220		
12	0210	East	Weak SS
	0530	≈ center	Weak SS
	0830	West	
	1220	West	1st of double onset, weak SS
	1250	West	2nd of double onset, weak SS
13	0540	East	Weak SS
	0725	≈ center	
14	1400		
			Field active north of auroral oval after 1525 UT, Cape Parry to Johnson Point.
15			Field generally unsettled throughout the day.
	0415	East	Weak SS
	0500	East	
	1445		Field active north of oval after 1430 UT, Inuvik to Johnson Point.
16	0625	≈ center	1st of double onset
	0700	≈ center	2nd of double onset
17			Field slightly unsettled; no distinctive SS activity.
18			Field became active on most network stations after 1640 UT. From Cape Parry to Johnson Point magnetometers became very active.
19			Field active all day.
	0130	East	
	0410	East	
	0855	West	
	0955	West	
	1155	West	
20			Field intermittently active throughout day.
	0355	East	
	0515	≈ center	
	1150	West	
21	0810	West	
	1330		1st of double onset
	1400		2nd of double onset
22			Field active throughout the day.
	0125	East	
	0815	≈ center	
	0855	≈ center	
23	0435	East	
	0505	East	Field became unsettled after 1800 UT.
24			Field active throughout the day.
	0210	East	
	0230	East	
	0300	East	
	0655	West	Strong SS at Boulder
	1025	West	
	1215		Slow onset
	1310		
	1650		
25			Field active throughout the day.
	0325	East	
	0725	≈ center	
	1030		Initiation of numerous substorms/injections lasting through 2000 UT.
26	0135	East	
	0330	≈ center	Current systems distorted both temporally and spatially within network.
	0620	West	
	1145		Slow onset; response only from stations along auroral oval.
	1455		Slow onset
	1605		Substorm expansion northward through Alaskan network.
27	0200		Initiation of numerous substorms/injections lasting through 1700 UT.
28	0105	East	
	0500	East	Weak SS
	0535	East	Weak SS
29	1850		Positive impulse on H component at nearly all network stations; very sharp response at 2045 UT. Effect strongest north of oval, at mid and low latitudes, and at synchronous orbit.
30			Disturbance continued through 0800 UT.
31			No distinctive SS activity.

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

SGD 418 Part I (Prompt)

APRIL 1979 DATA

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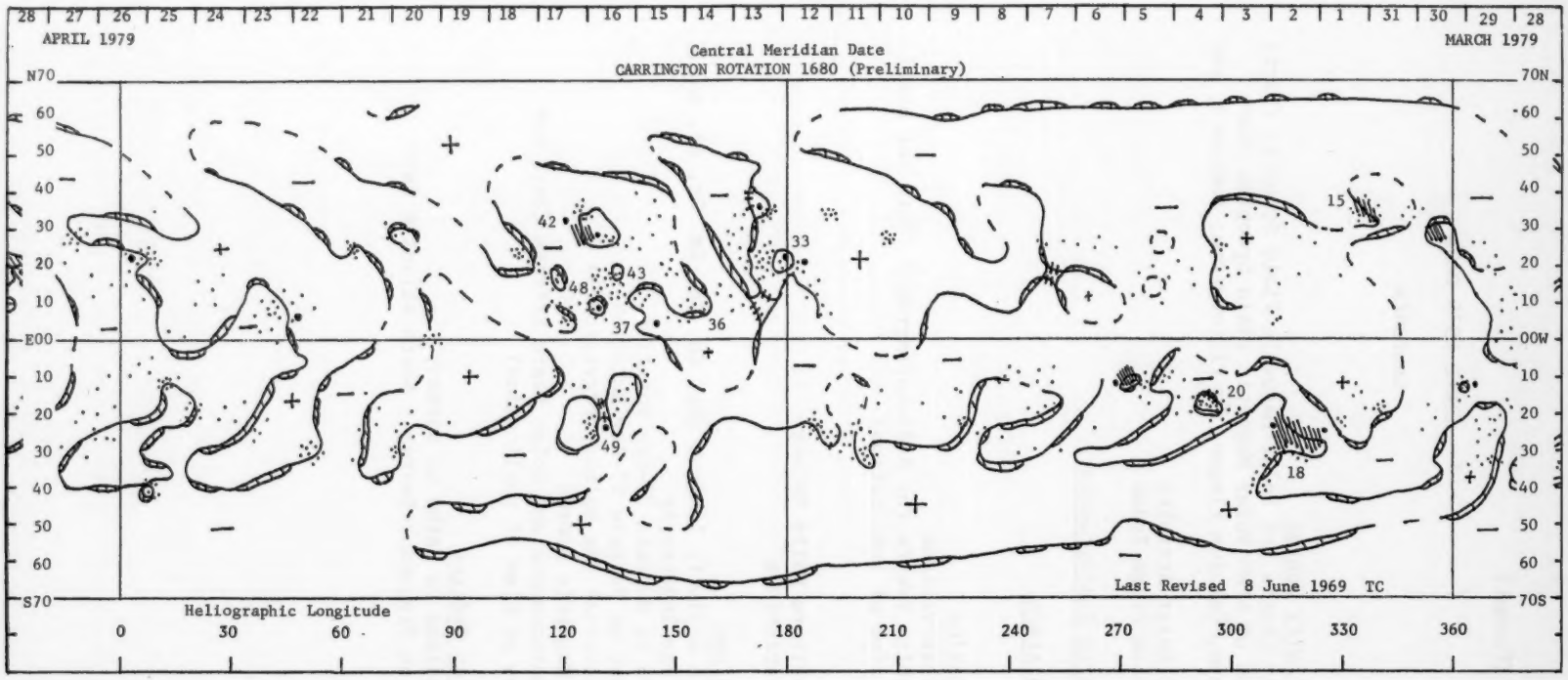
Hα SYNOPTIC CHART

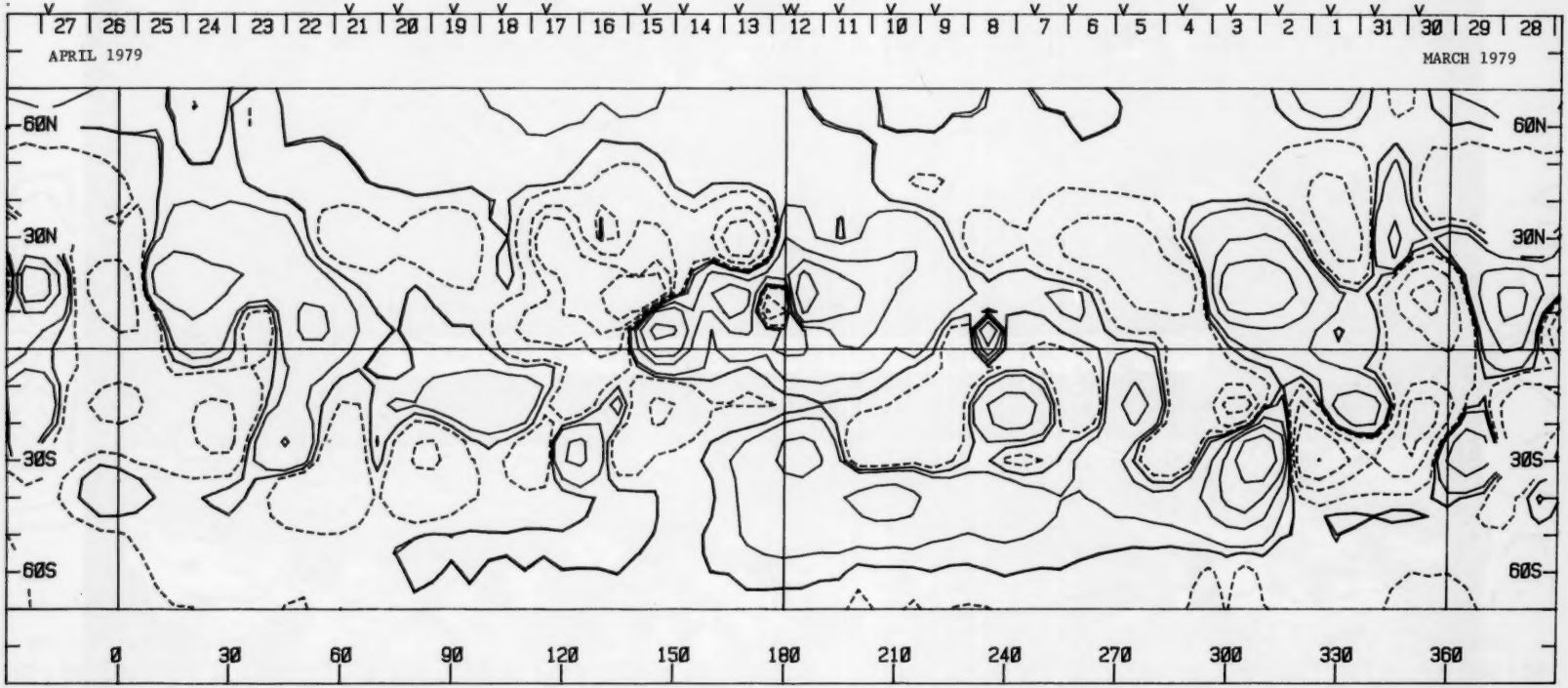
CARRINGTON ROTATION 1680 (PRELIMINARY)



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1680

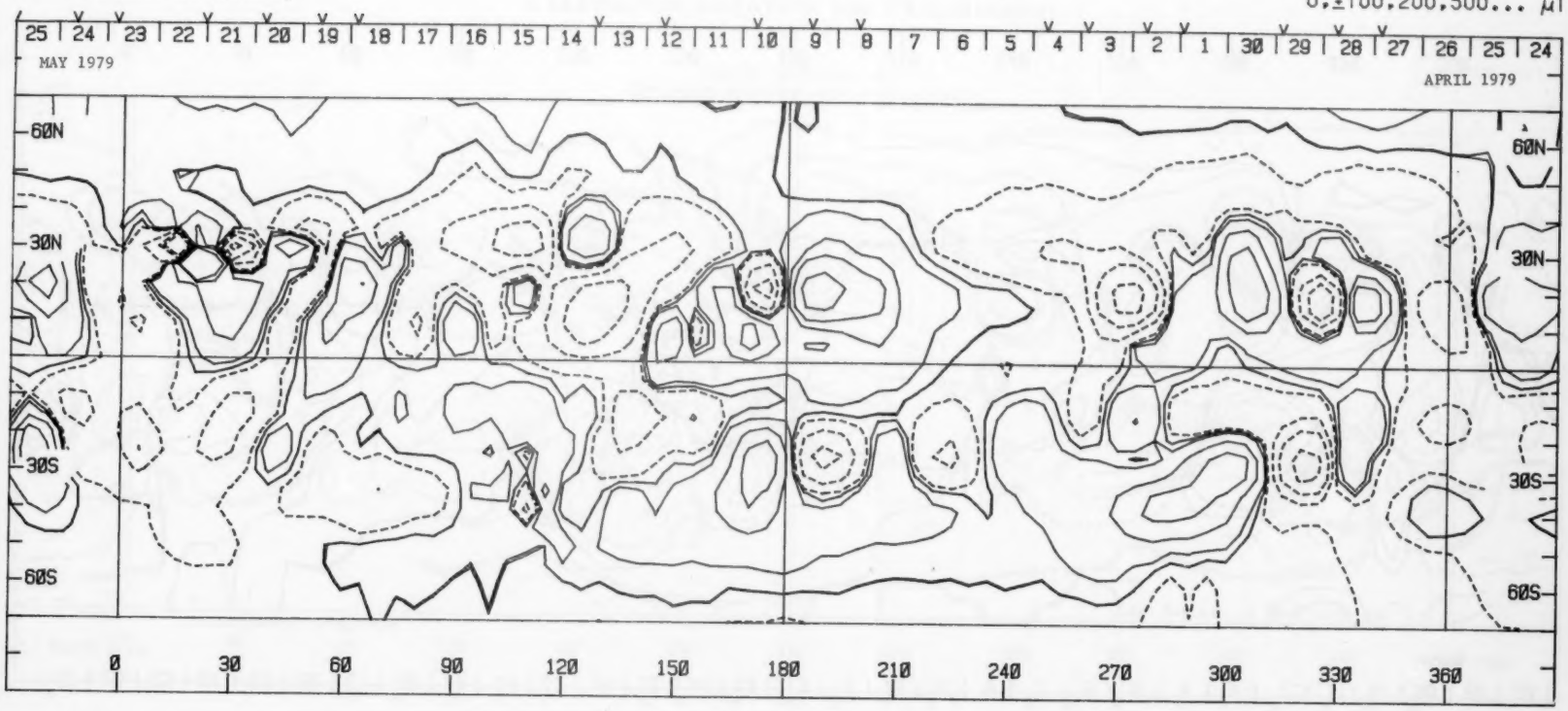
Stanford Solar Observatory

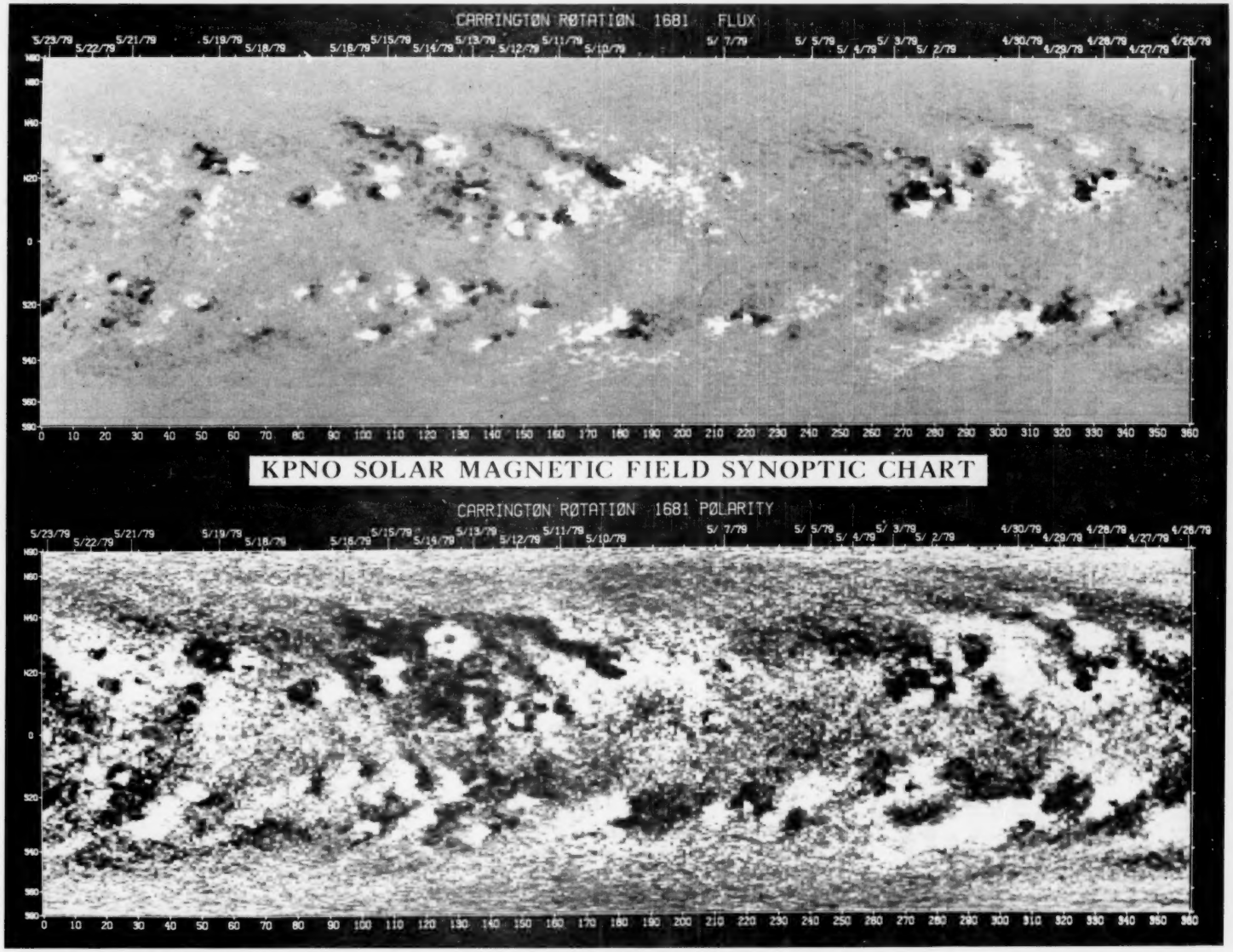
0,±100,200,500... μT



SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1681

Stanford Solar Observatory




CARRINGTØN RØTATIØN 1681 FLUX
5/23/79 5/22/79 5/21/79 5/19/79 5/18/79 5/16/79 5/15/79 5/14/79 5/13/79 5/12/79 5/11/79 5/10/79 5/ 7/79 5/ 5/79 5/ 4/79 5/ 3/79 5/ 2/79 4/30/79 4/29/79 4/28/79 4/27/79 4/26/79
KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTØN RØTATIØN 1681 PØLARITY
5/23/79 5/22/79 5/21/79 5/19/79 5/18/79 5/16/79 5/15/79 5/14/79 5/13/79 5/12/79 5/11/79 5/10/79 5/ 7/79 5/ 5/79 5/ 4/79 5/ 3/79 5/ 2/79 4/30/79 4/29/79 4/28/79 4/27/79 4/26/79

DESCRIPTION OF
KITT PEAK NATIONAL OBSERVATORY SOLAR MAGNETIC FIELD SYNOPTIC CHART

The format of these maps matches the standard width of the other synoptic charts in *Solar Geophysical Data*. The maps are derived from arrays of 360 elements in longitude (1° bins) and 180 elements equally spaced in sine of the latitude. The projection is an equal area cylindrical projection. The map labeled "flux" shows the average field strength in each bin weighted heavily toward the central meridian observations. Grey is no field, white is positive, and black is negative. The map labeled "polarity" shows the average polarity in each bin. Full white (black) means all the magnetic measurements were positive (negative) polarity. Intermediate shades of grey represent mixtures of positive and negative values.

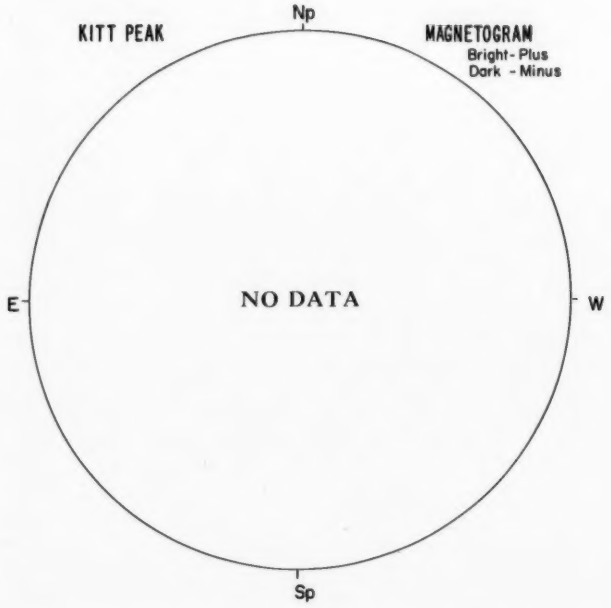
APRIL 1, 1979 (P =-26.18, B_o =-6.56 L_o =337.22)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

KITT PEAK

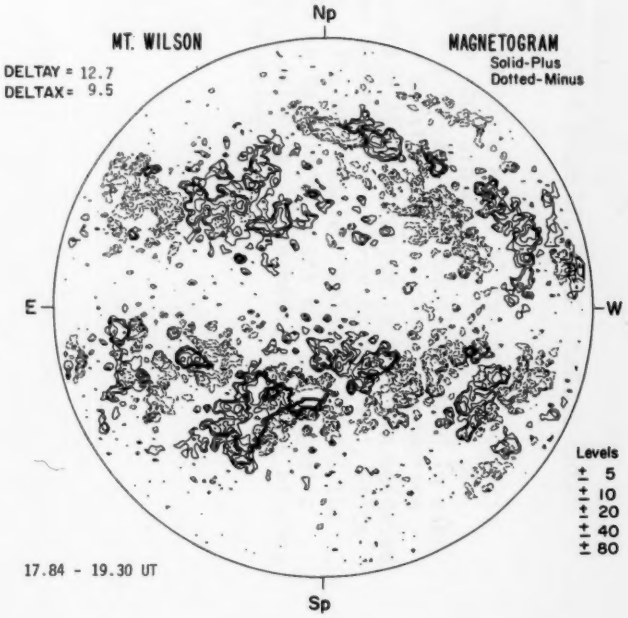
MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON

DELTAY = 12.7
DELTAX = 9.5

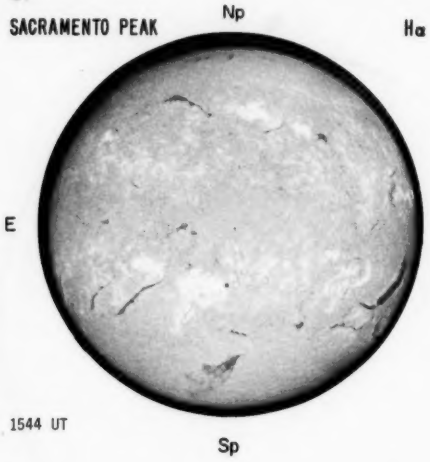
MAGNETOGRAM
Solid-Plus
Dotted-Minus



17.84 - 19.30 UT

OI

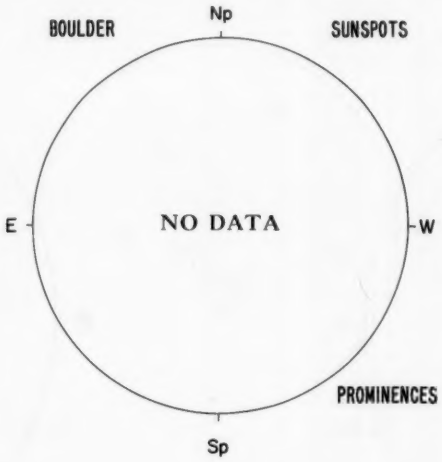
SACRAMENTO PEAK



1544 UT

Hα

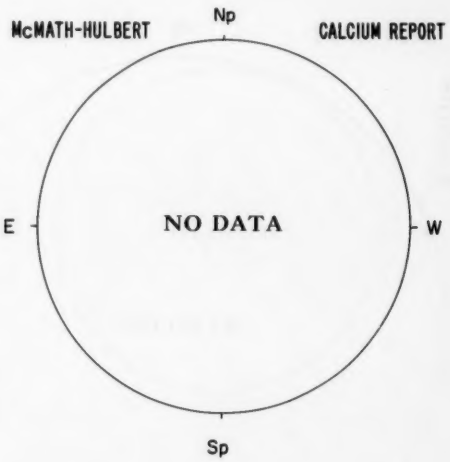
BOULDER



SUNSPOTS

PROMINENCES

McMATH-HULBERT



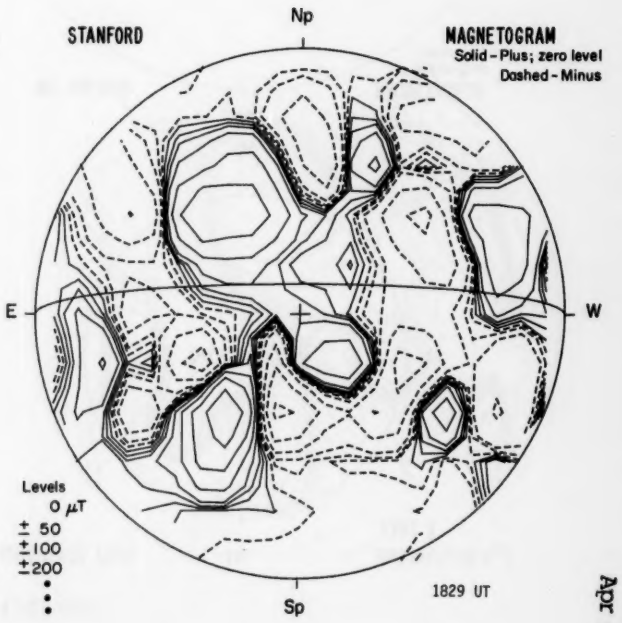
CALCIUM REPORT

STANFORD

MAGNETOGRAM

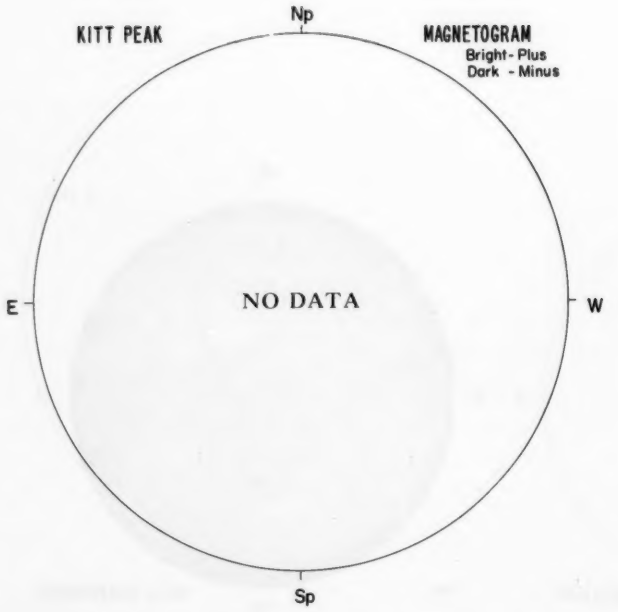
Solid - Plus; zero level

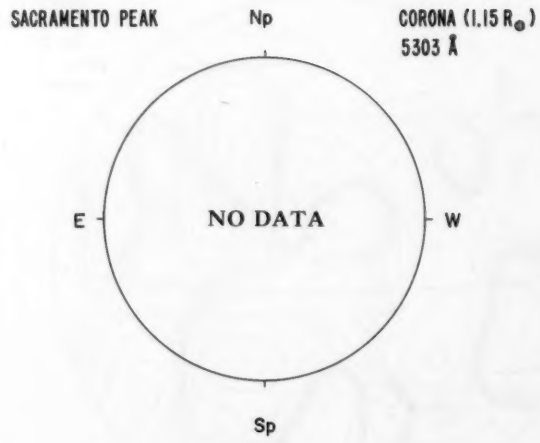
Dashed - Minus

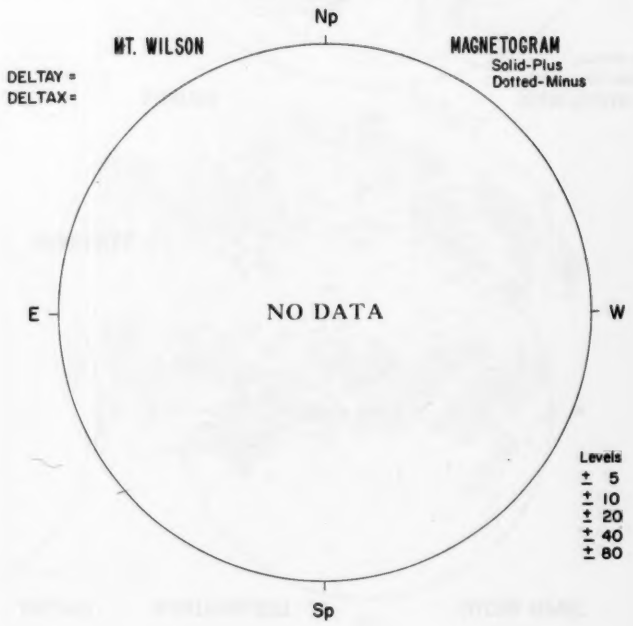


1829 UT

APRIL 2, 1979 (P =-26.22, B_o =-6.50, L_o = 324.03)





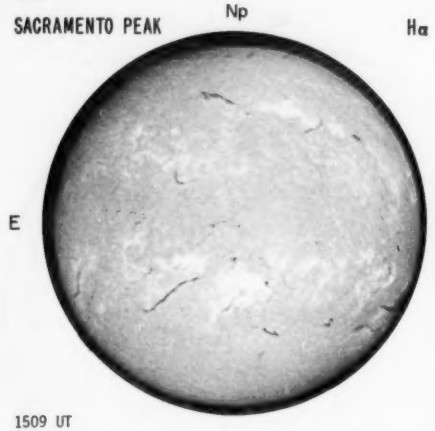


Sp

Sp

02

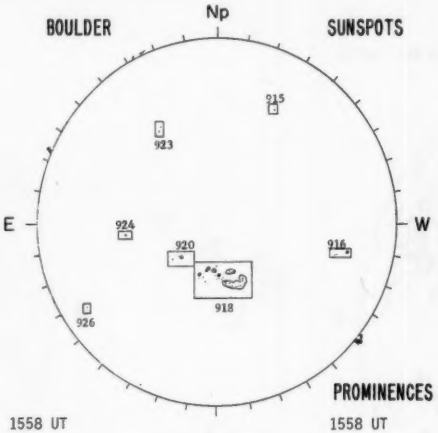
SACRAMENTO PEAK



Hα

1509 UT

BOULDER



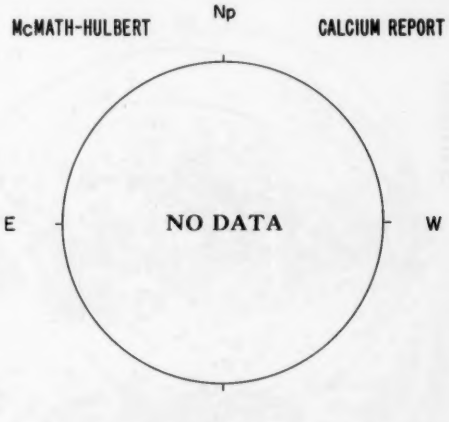
SUNSPOTS

PROMINENCES

1558 UT

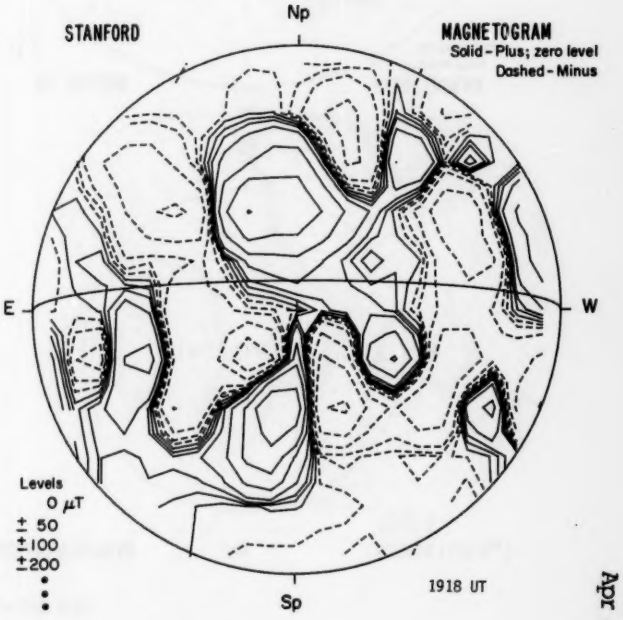
1558 UT

McMATH-HULBERT



CALCIUM REPORT

STANFORD



MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

1918 UT

APRIL 3, 1979 (P=-26.26, B_o=-6.45, L_o=310.83)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — NO DATA — W

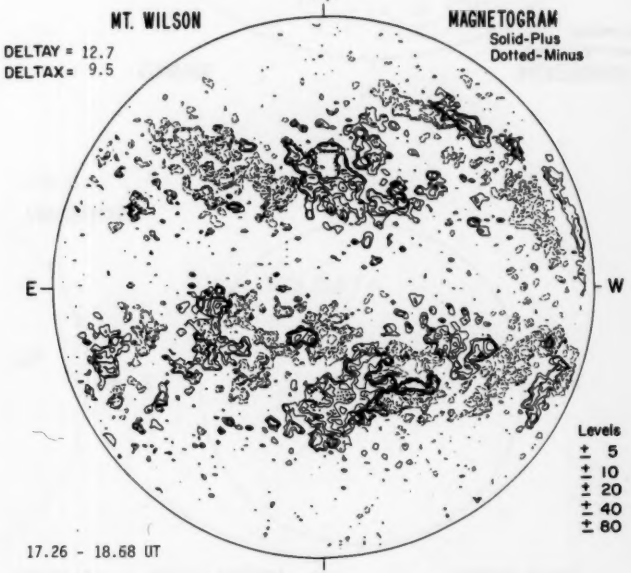
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5



17.26 - 18.68 UT

Sp

Sp

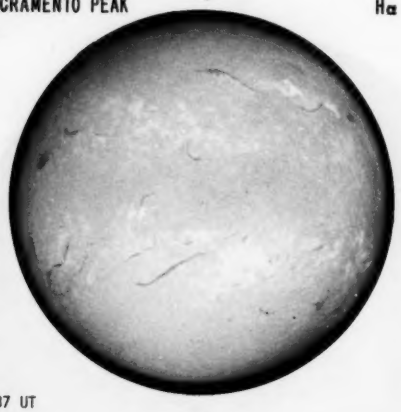
Sp

03

SACRAMENTO PEAK

Np

Hα



E

W

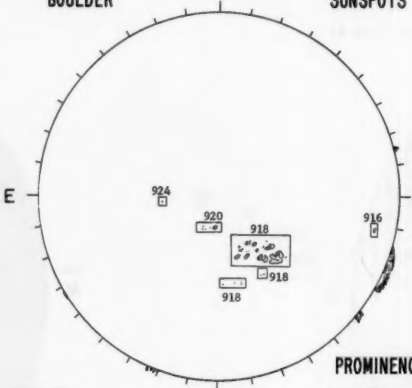
1737 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1600 UT

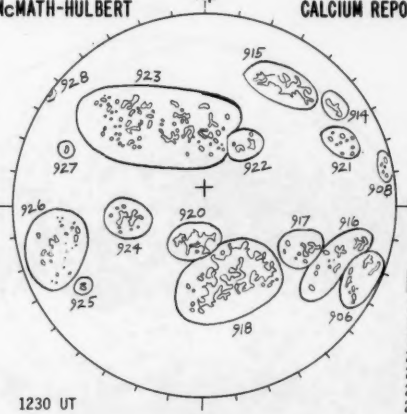
1603 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E

W

FAIR	M
14- 0700-3.0	
15- 2900-3.5	
18- 6400-4.0	
20- 1600-2.5	
22- 0500-2.5	
23- 4000-2.5	
24- 0900-2.5	

1230 UT

Sp

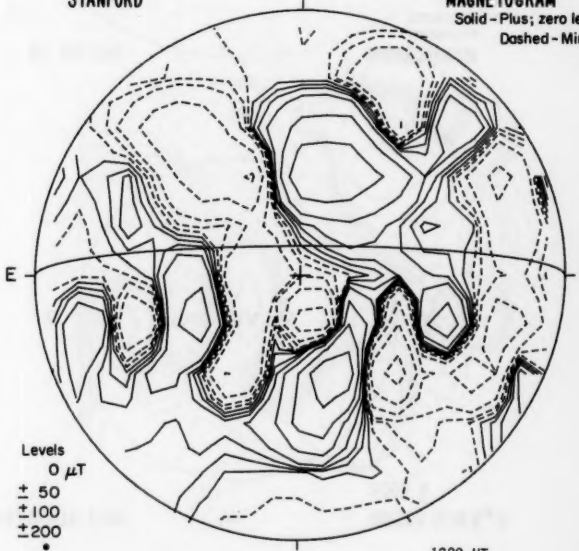
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

Levels

0 μT

± 50

±100

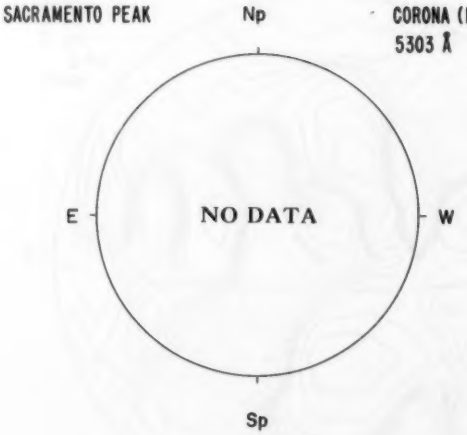
±200

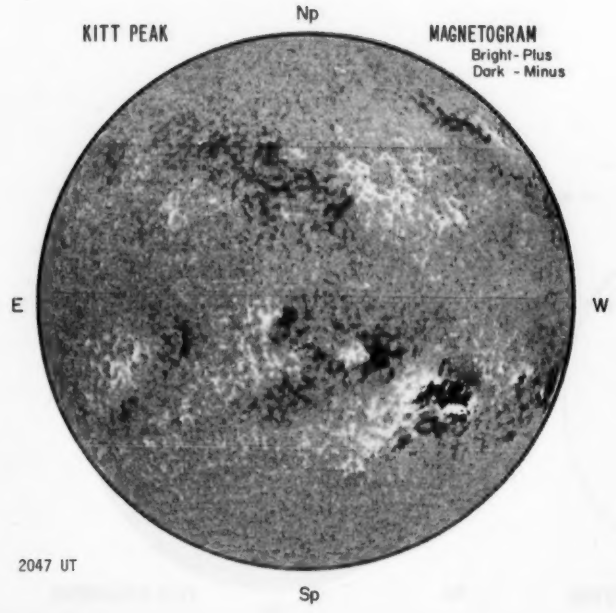
1920 UT

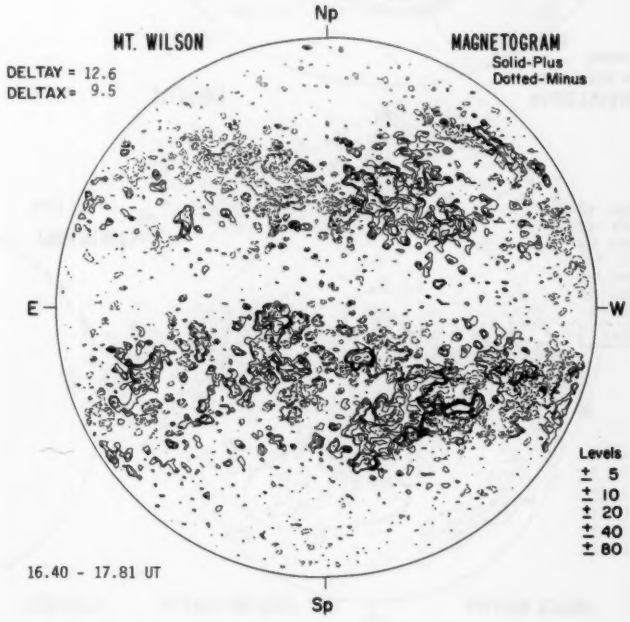
Sp

APRIL 4, 1979 (P=-26.28, B_o=-6.39, L_o=297.64)

SACRAMENTO PEAK







Sp

Sp

04

SACRAMENTO PEAK

Np

Hα

E

W

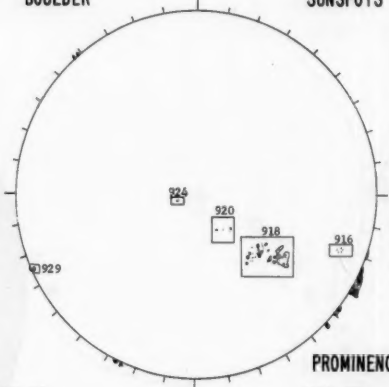
1502 UT

Sp

BOULDER

Np

SUNSPOTS



E

W

PROMINENCES

1430 UT

1428 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT

E

W

Sp

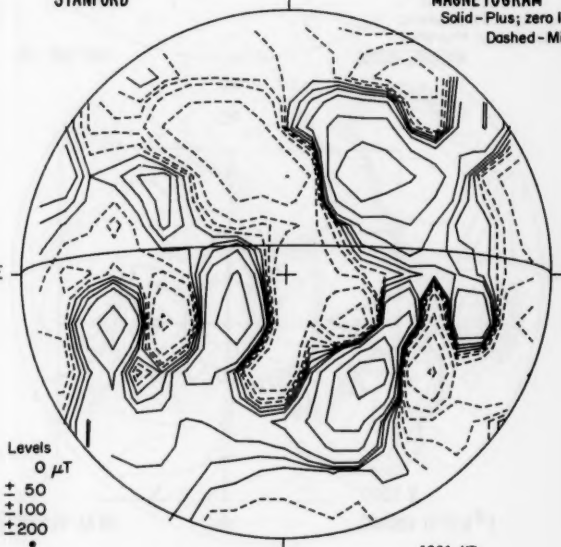
STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E

W

1931 UT

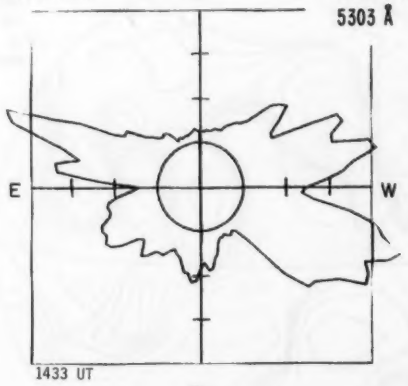
Sp

55

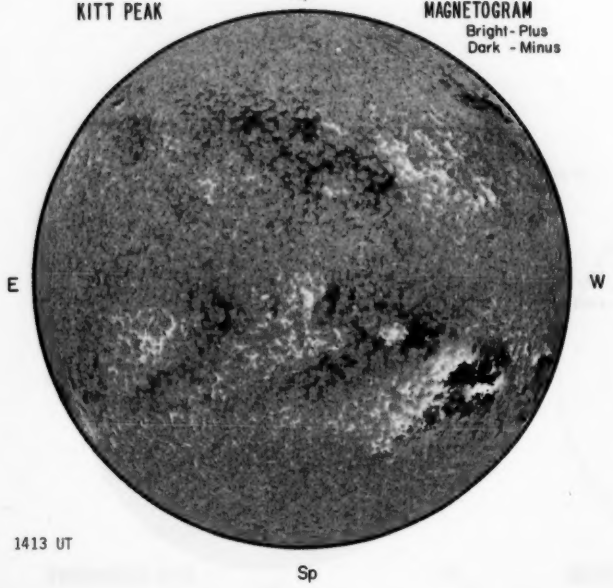
Apr 79

APRIL 5, 1979 (P =-26.30, B_o =-6.33, L_o =284.44)

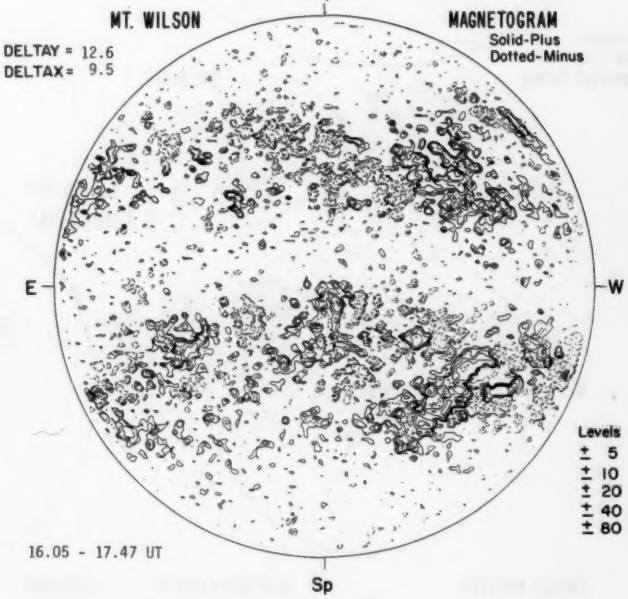
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY = 12.6
DELTAX = 9.5

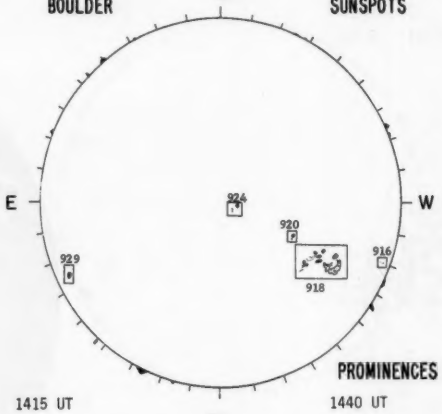


05

SACRAMENTO PEAK Hα

1503 UT

BOULDER SUNSPOTS

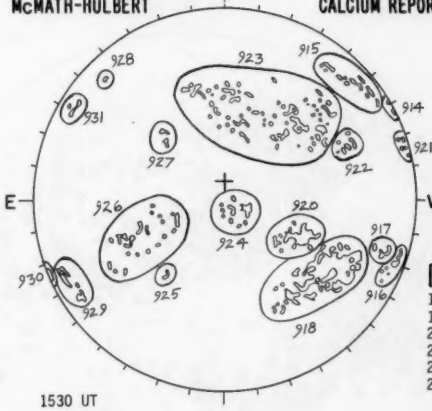


1415 UT

PROMINENCES

1440 UT

McMATH-HULBERT CALCIUM REPORT

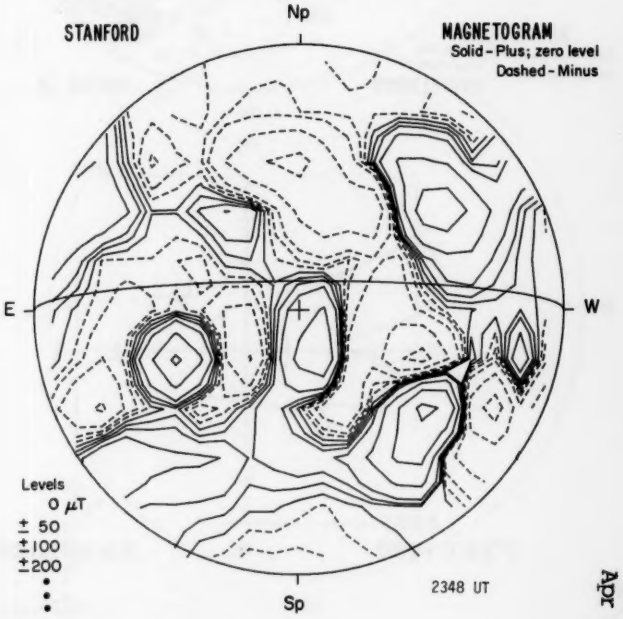


1530 UT

FAIR	S
15-	1900-2.5
18-	6600-3.0
20-	1800-2.5
23-	4000-2.0
28-	0100-2.5
29-	1800-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

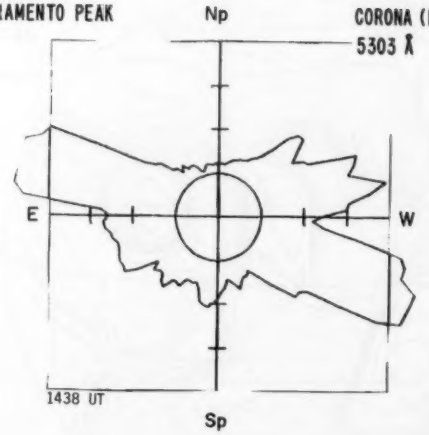


2348 UT

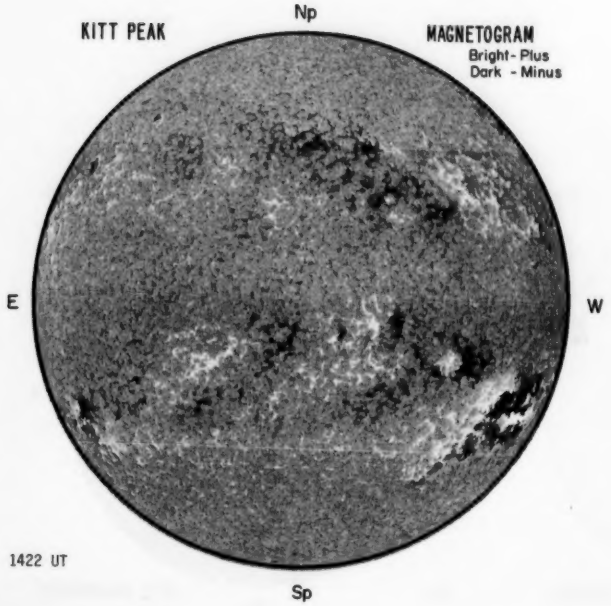
57
Apr 79

APRIL 6, 1979 (P=-26.32, B_o=-6.27, L_o=271.25)

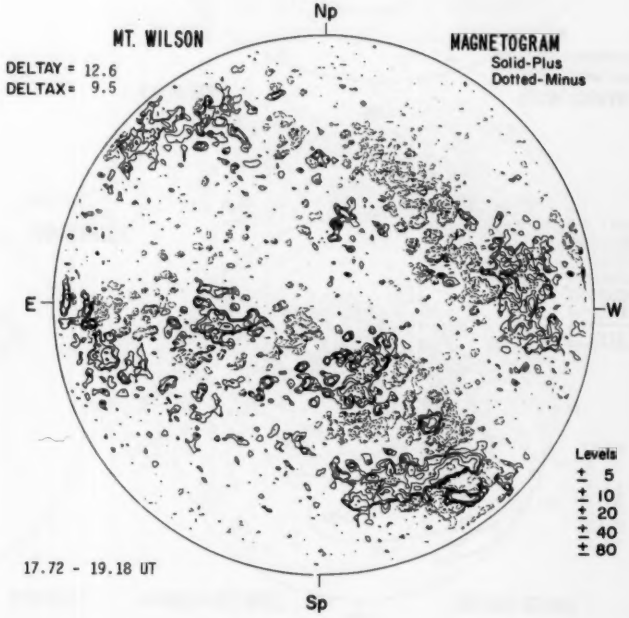
SACRAMENTO PEAK



KITT PEAK



MT. WILSON

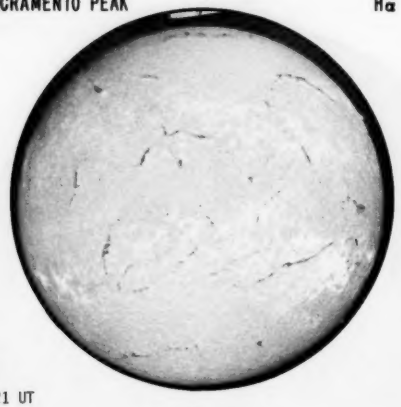


Sp

Sp

06

SACRAMENTO PEAK Np Hα

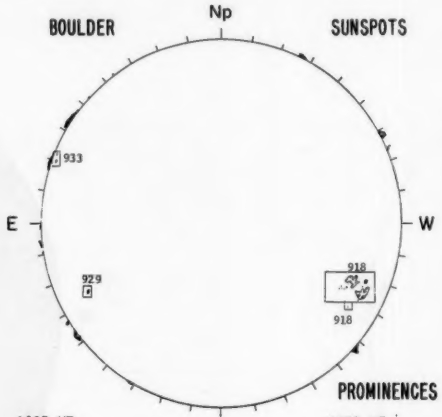


E W

1521 UT

Sp

BOULDER Np SUNSPOTS



E W

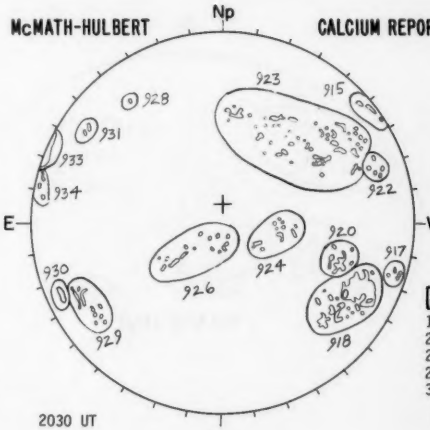
PROMINENCES

1635 UT

Sp

1625 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

POOR	S
18- 6500-3.0	
20- 1400-2.5	
23- 3500-2.0	
29- 1700-2.5	
33- 2700-3.5	

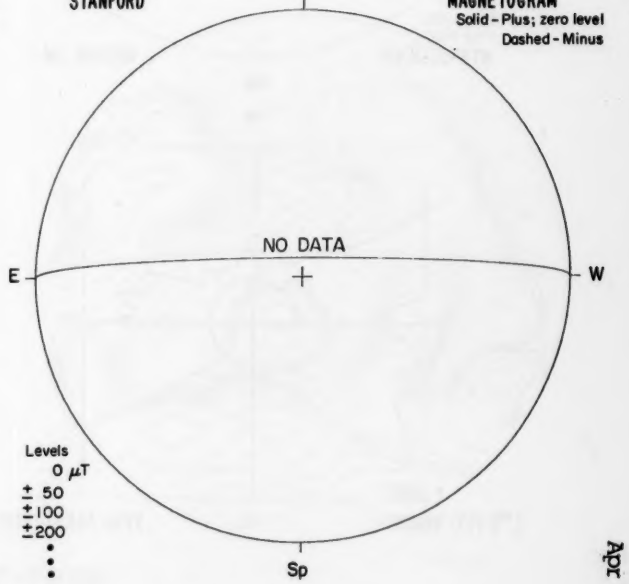
2030 UT

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



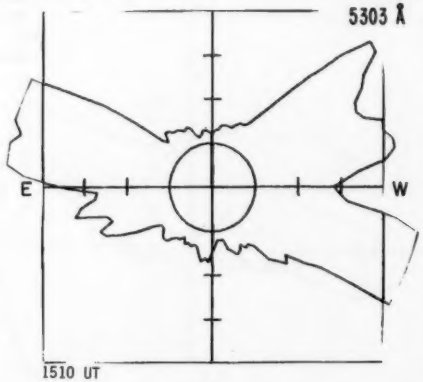
Sp

APRIL 7, 1979 (P=-26.33, B_o=-6.20, L_o=258.05)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

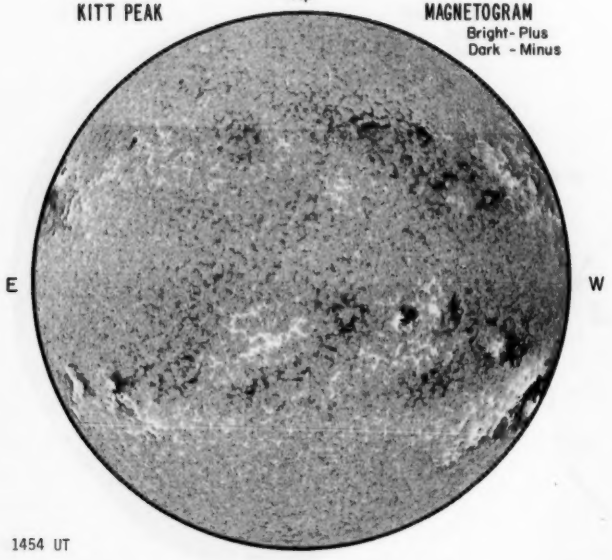


Sp

KITT PEAK

Np

MAGNETOGRAM
Bright- Plus
Dark - Minus



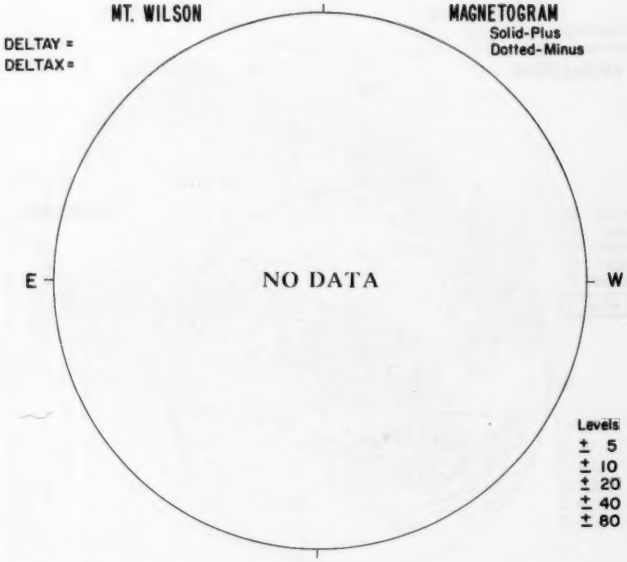
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =



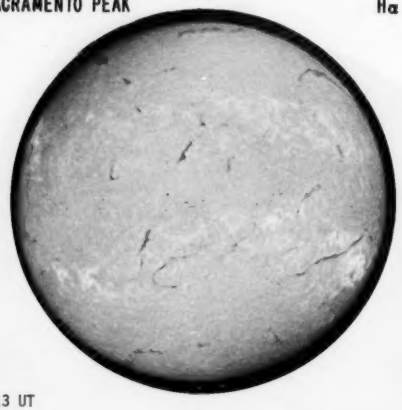
Sp

Sp

Sp

07

SACRAMENTO PEAK Np Hα

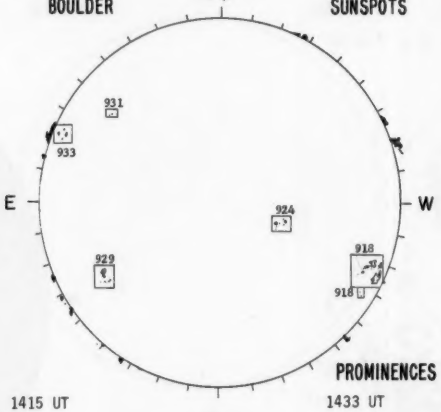


E W

1513 UT

Sp

BOULDER Np SUNSPOTS



E W

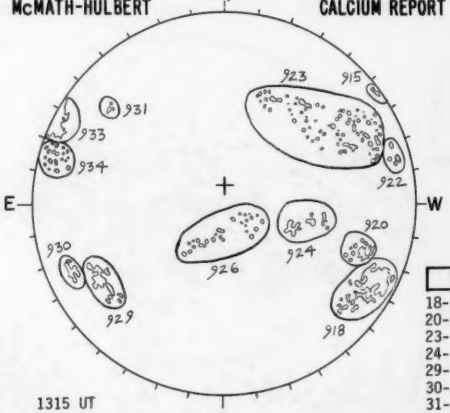
PROMINENCES

1415 UT

1433 UT

Sp

McMATH-HULBERT Np CALCIUM REPORT



E W

FAIR	M
18- 6500-3.5	
20- 1400-2.5	
23- 3500-2.5	
24- 1000-2.5	
29- 1700-2.5	
30- 1000-2.5	
31- 0200-2.5	
33- 3800-3.5	

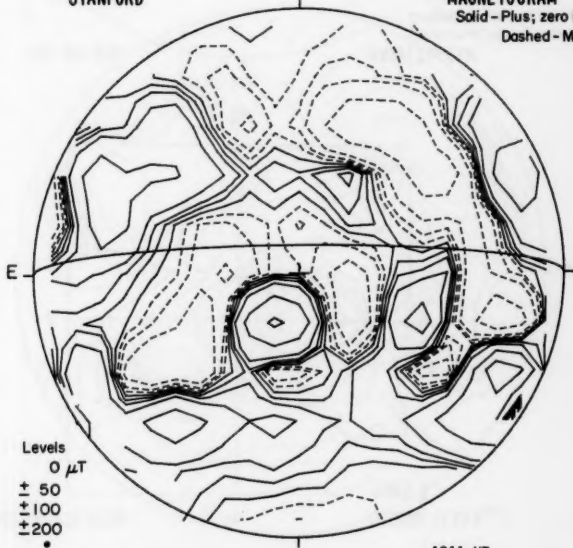
1315 UT

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

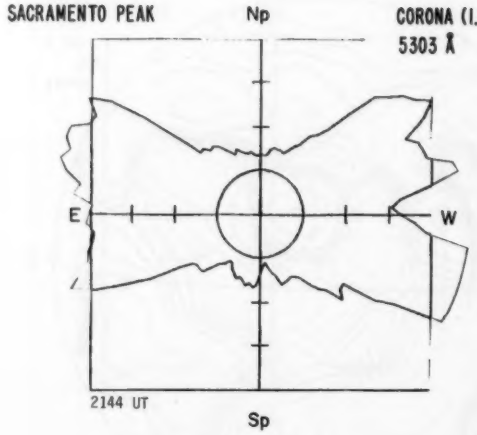
±100

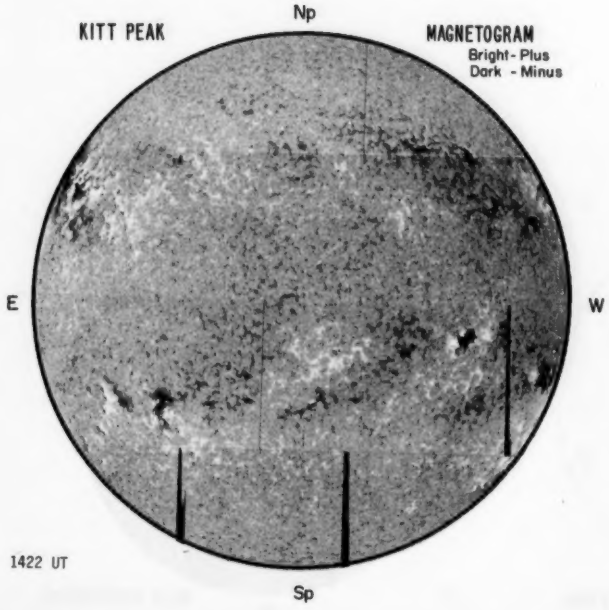
±200

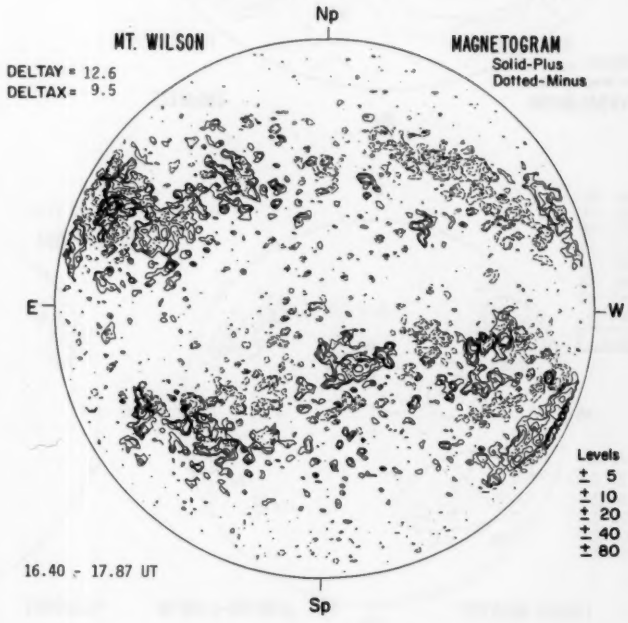
1911 UT

Sp

APRIL 8, 1979 (P=-26.32, B_o=-6.14, L_o=244.85)







Sp

Sp

08

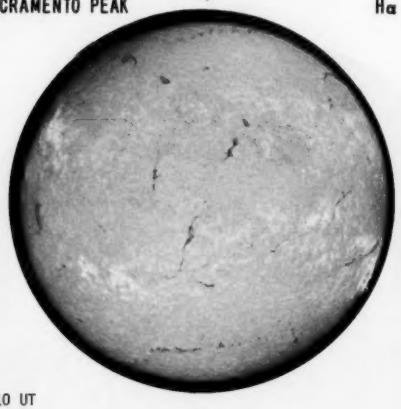
SACRAMENTO PEAK

Np

Hα

E

W



1510 UT

Sp

BOULDER

Np

SUNSPOTS

E

W

933

926

929

918

918

PROMINENCES

1445 UT

Sp

1452 UT

McMATH-HULBERT

Np

CALCIUM REPORT

E

NO DATA

W

Sp

STANFORD

Np

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus

E

W

Levels

0 μT

± 50

±100

±200

•

•

•

Sp

1916 UT

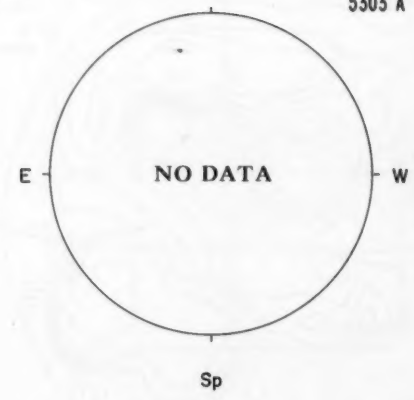
63

Apr 79

APRIL 9, 1979 (P=-26.32, B_o=-6.07, L_o=231.65)

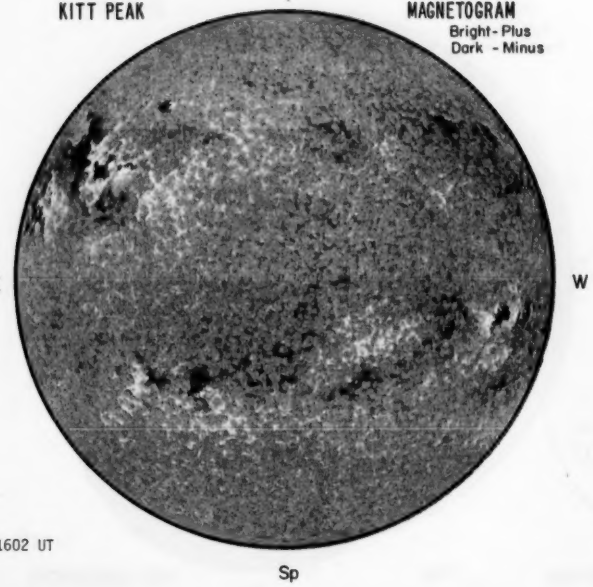
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

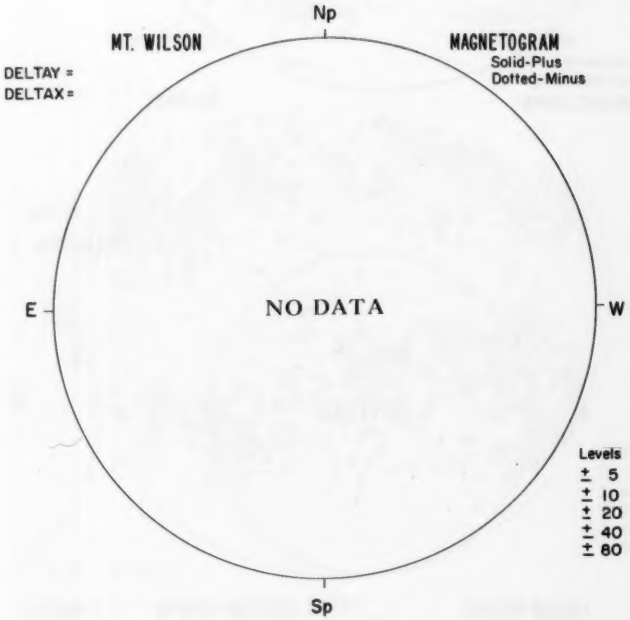


1602 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

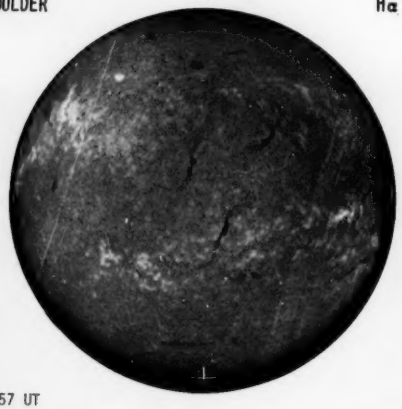


Sp

Sp

09

BOULDER Np Hα

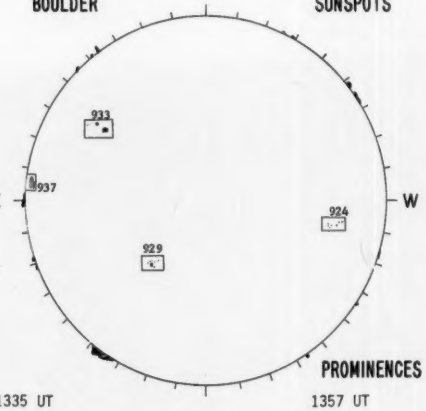


E W

1357 UT

Sp

BOULDER Np SUNSPOTS



E W

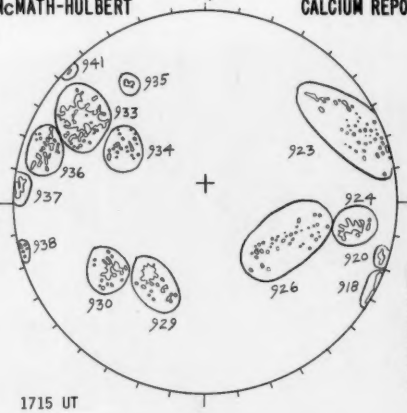
1335 UT

Sp

PROMINENCES

1357 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

1715 UT

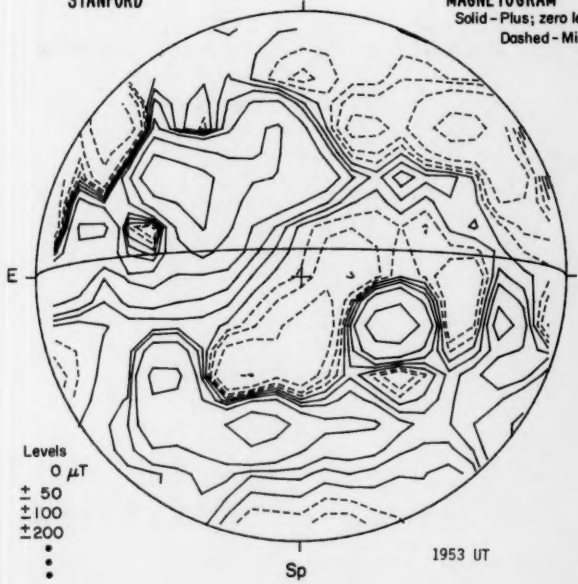
Sp

GOOD	M
24- 1700-3.0	
29- 1700-2.5	
30- 1100-2.5	
33- 4000-4.0	
35- 0300-3.0	
37- 1900-2.5	

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



E W

Levels

0 μT

± 50

±100

±200

• • •

1953 UT

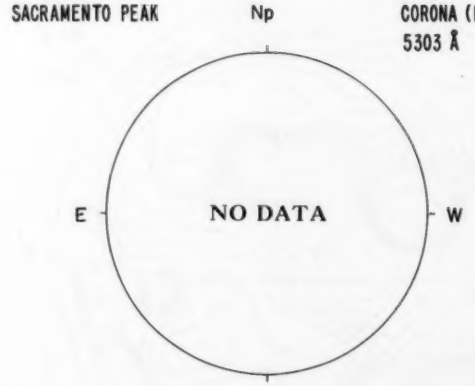
Sp

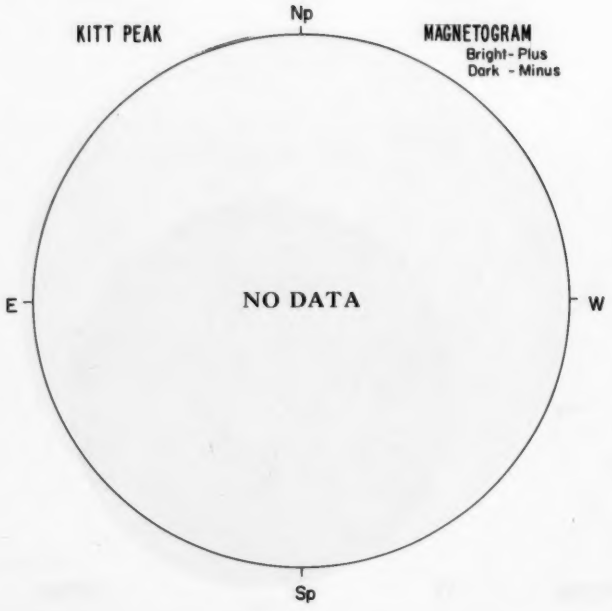
65

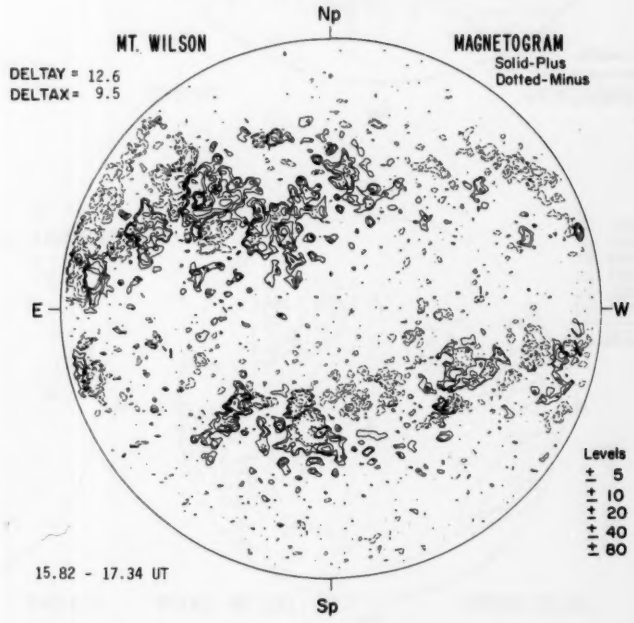
Apr 79

APRIL 10, 1979 (P=-26.30, B_o=-6.00, L_o=218.46)

SACRAMENTO PEAK

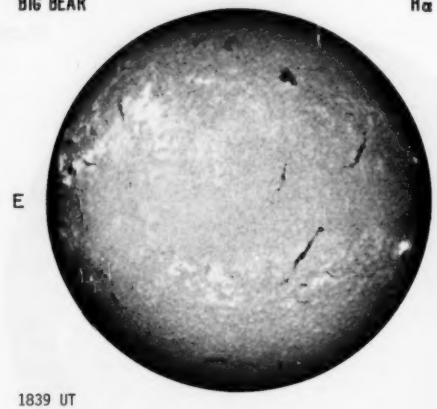






IO

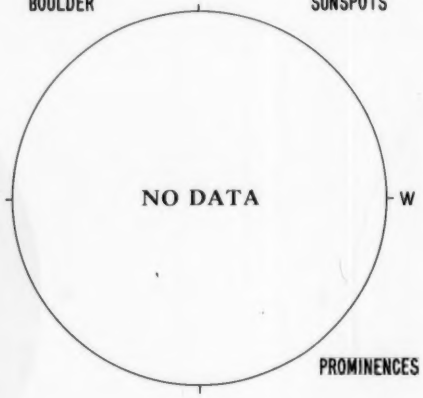
BIG BEAR Hα



1839 UT

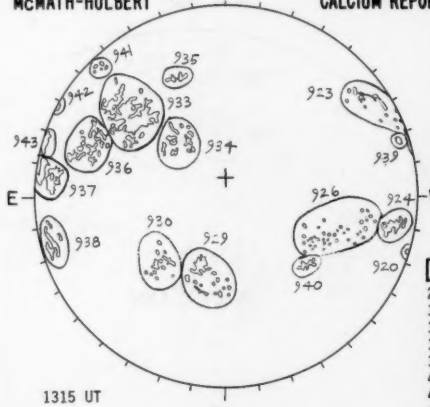
Photographs From —
Solar Observatory
City, California
1-10-79

BOULDER SUNSPOTS



PROMINENCES

McMATH-HULBERT CALCIUM REPORT

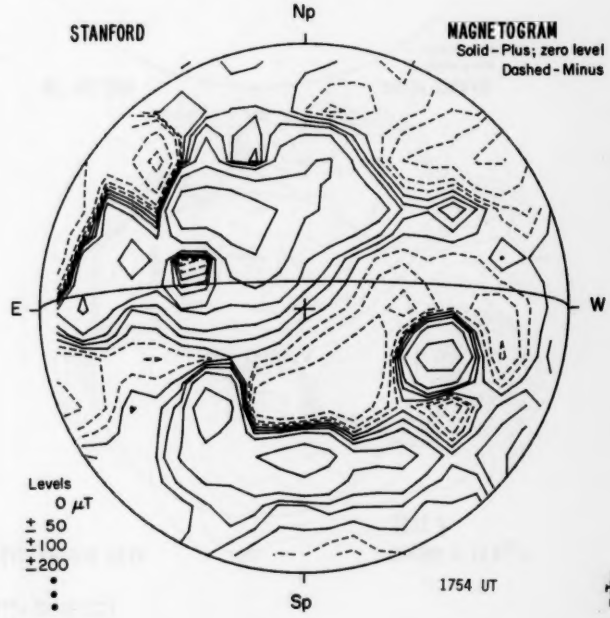


1315 UT

GOOD	M
24- 2000-2.5	
33- 4900-3.5	
35- 0400-2.5	
37- 4400-3.5	
39- 0400-3.0	
40- 0400-2.5	
42- 0400-3.0	
43- 2000-3.0	

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1754 UT

67
Apr 79

APRIL 11, 1979 (P=-26.28, B_o=-5.93, L_o=205.25)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

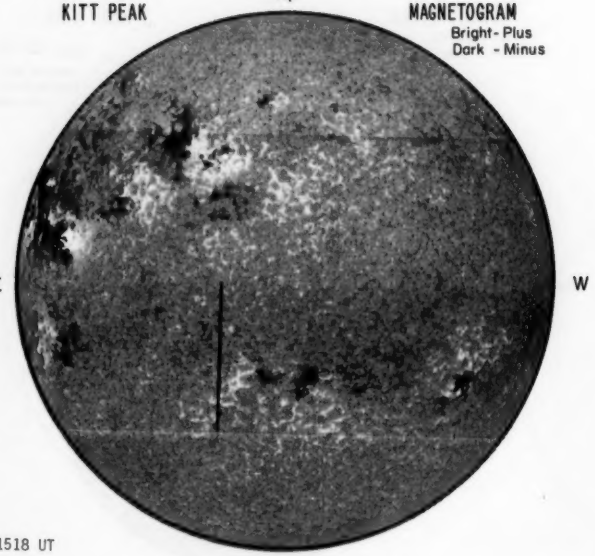
Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E



W

1518 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E

NO DATA

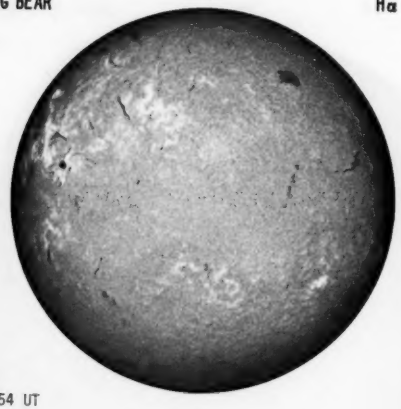
W

Levels
+ 5
+ + 10
+ + + 20
+ + + + 40
+ + + + + 80

Sp

11

BIG BEAR Np Hα



E W

2054 UT

So

graphs From —
ear Solar Observatory
lear City, California
Date: 4-11-79

BOULDER Np SUNSPOTS

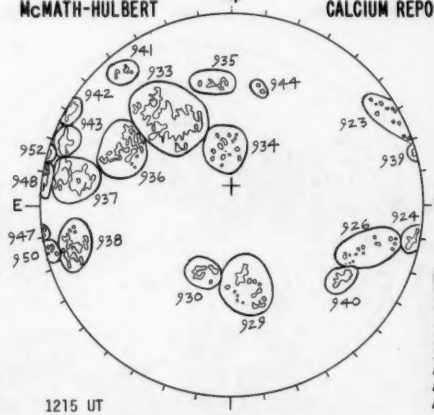
NO DATA

E W

PROMINENCES

Sp

McMATH-HULBERT Np CALCIUM REPORT



E W

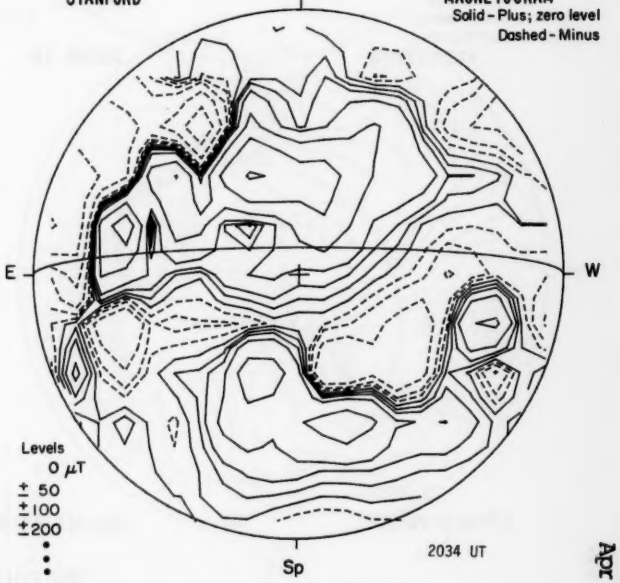
1215 UT

Sp

FAIR	M
24- 1400-2.5	
33- 5100-3.0	
37- 4000-3.0	
39- 0500-3.0	
40- 0700-3.0	
42- 1000-3.5	
43- 2500-3.0	

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
•
•
•

2034 UT

Sp

69
Apr 79

APRIL 12, 1979 (P=-26.25, B_o=-5.86, L_o=192.05)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright-Plus
Dark - Minus

E

W

1454 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.7

E

W

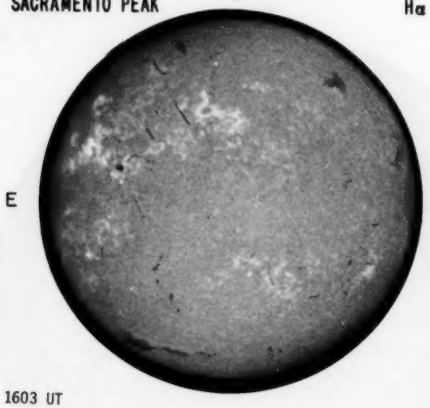
Levels
± 5
± 10
± 20
± 40
± 80

23.61 - 24.66 UT

Sp

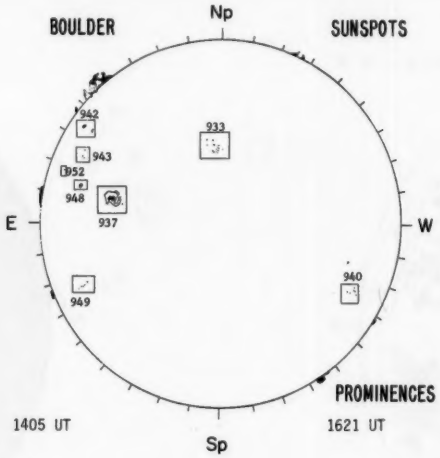
12

SACRAMENTO PEAK Hα



1603 UT

BOULDER SUNSPOTS

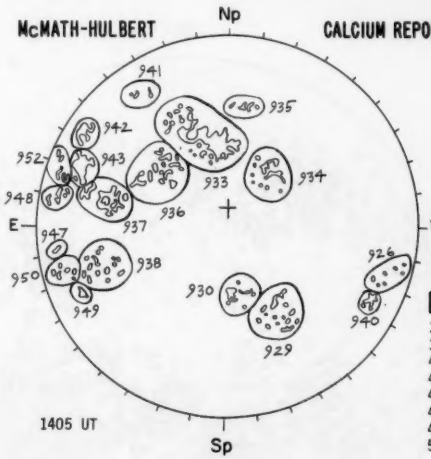


1405 UT

PROMINENCES

1621 UT

McMATH-HULBERT CALCIUM REPORT

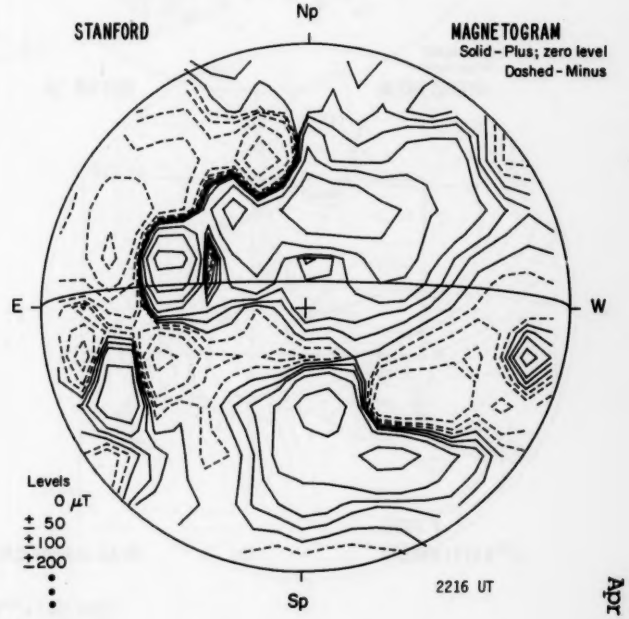


1405 UT

FAIR	S
33-	5500-3.0
37-	3500-3.0
40-	0700-2.5
42-	1200-3.5
43-	2600-3.0
48-	1500-2.5
49-	0500-2.5
52-	0900-2.5

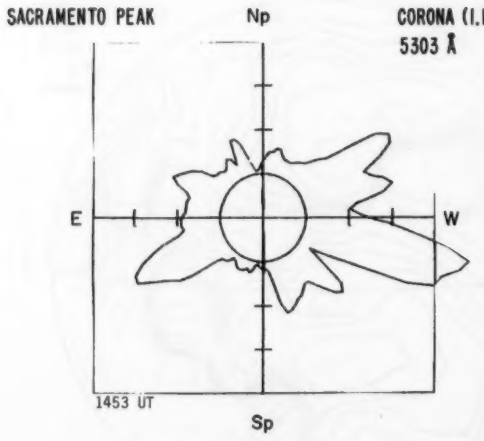
STANFORD MAGNETOGRAM

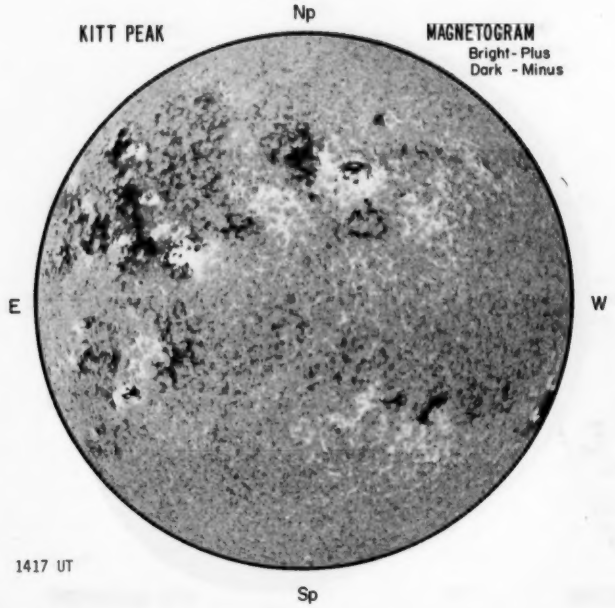
Solid - Plus; zero level
Dashed - Minus

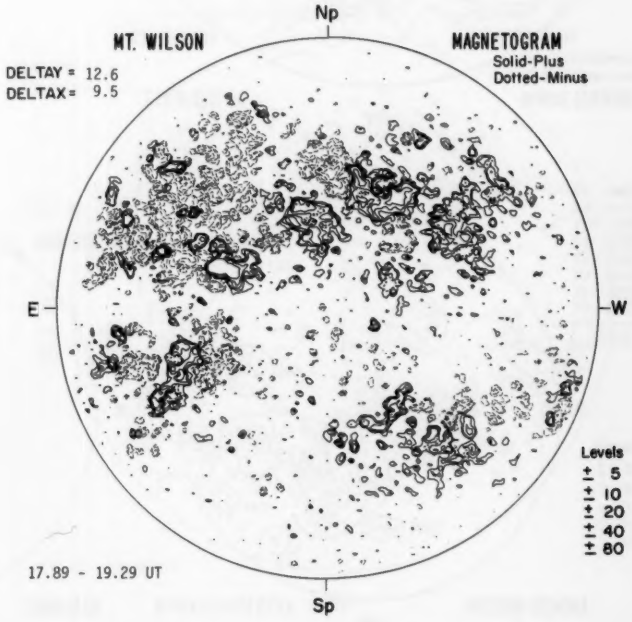


2216 UT

APRIL 13, 1979 (P=-26.21, B_o=-5.78, L_o=178.85)



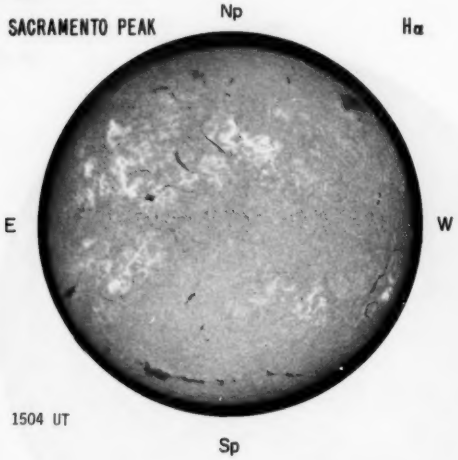




13

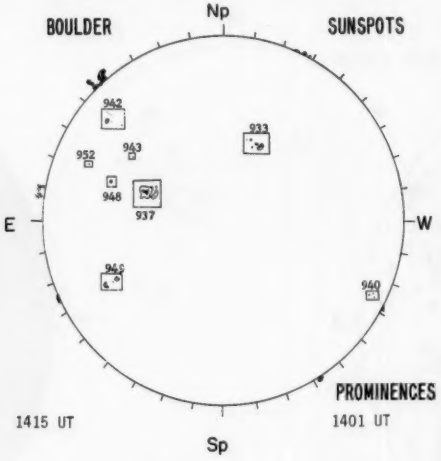
13

SACRAMENTO PEAK



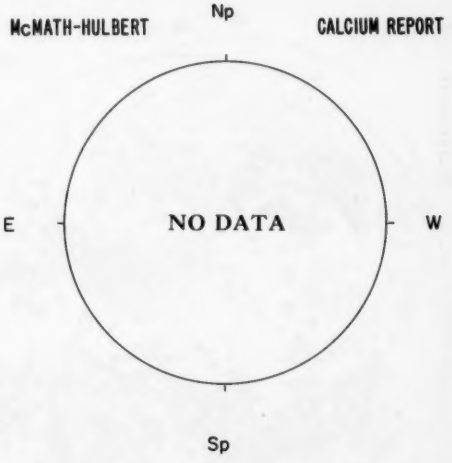
1504 UT

BOULDER SUNSPOTS



1415 UT

McMATH-HULBERT CALCIUM REPORT

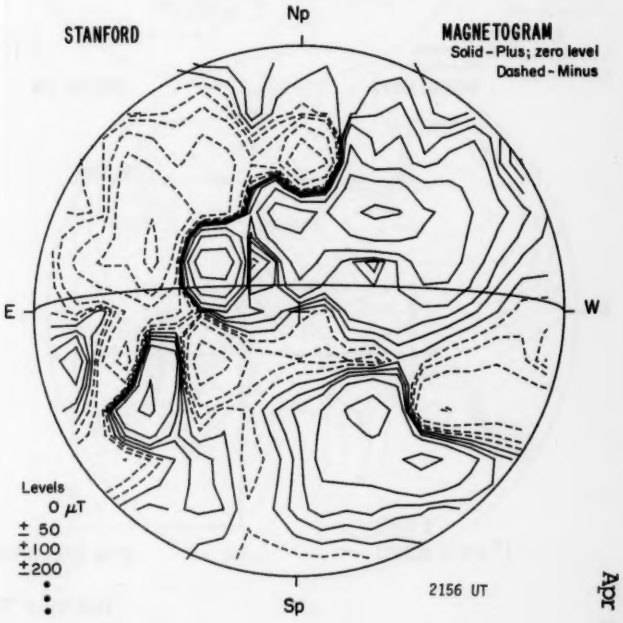


PROMINENCES

1401 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

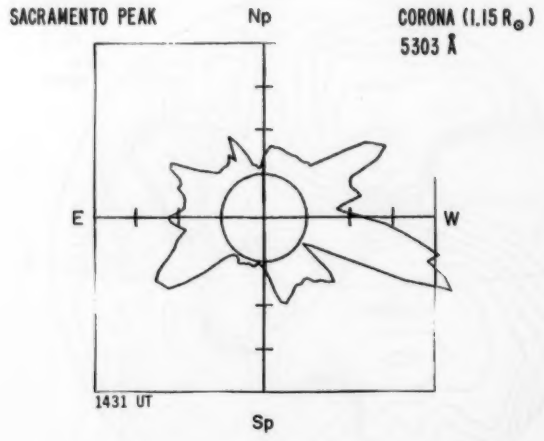


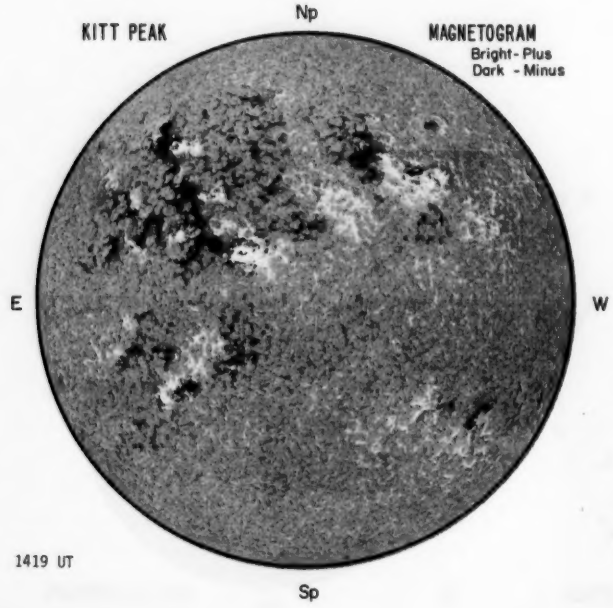
2156 UT

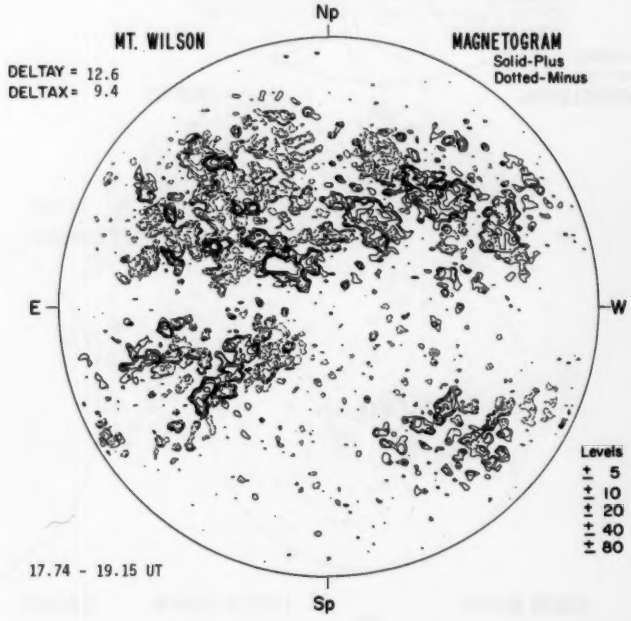
73
Apr 79

APRIL 14, 1979 (P =-26.17, B_o =-5.71, L_o =165.65)

SACRAMENTO PEAK

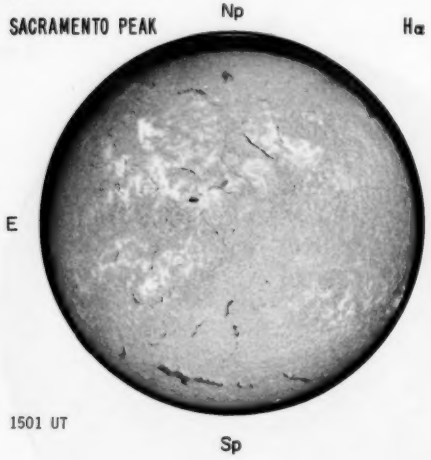






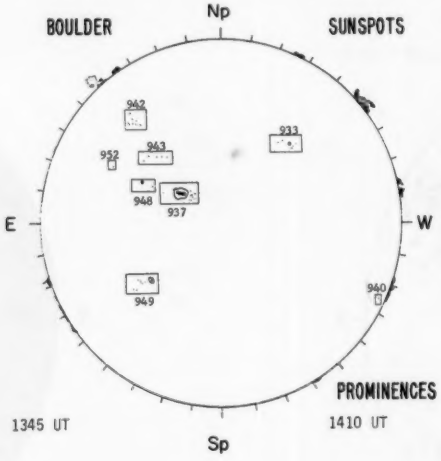
14

SACRAMENTO PEAK



1501 UT

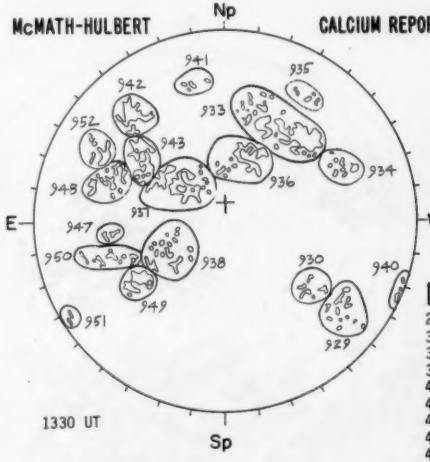
BOULDER



1345 UT

1410 UT

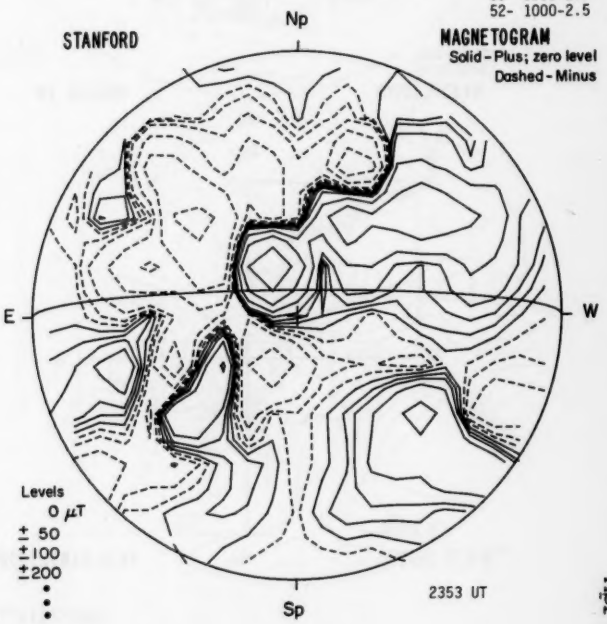
McMATH-HULBERT



1330 UT

GOOD	S
29-	1200-2.5
33-	5500-3.5
36-	2000-2.5
37-	3000-3.0
40-	0700-2.5
42-	2000-4.0
43-	2800-3.0
47-	0400-2.5
48-	1600-3.0
49-	1500-3.0
50-	0900-2.5
52-	1000-2.5

STANFORD



2353 UT

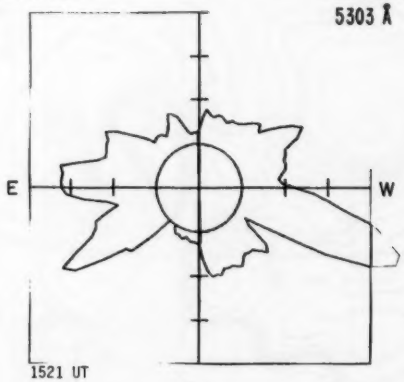
75
Apr 79

APRIL 15, 1979 (P=-26.11, B_o=-5.63, L_o=152.45)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



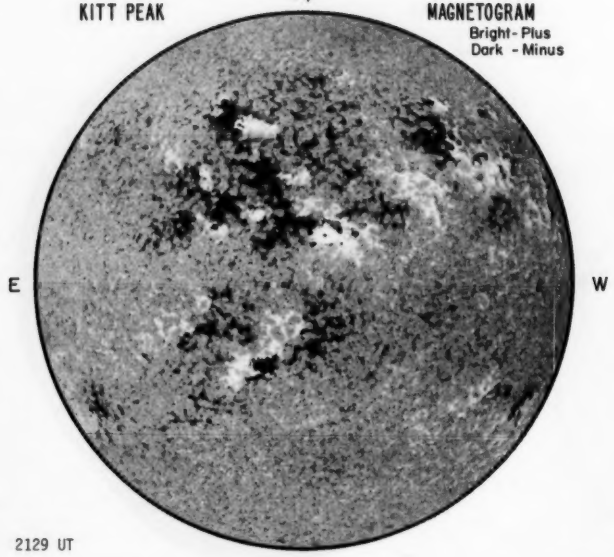
1521 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



2129 UT

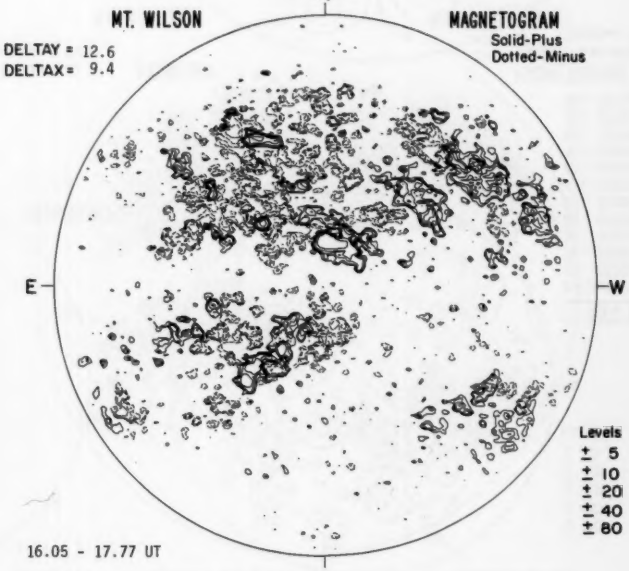
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4



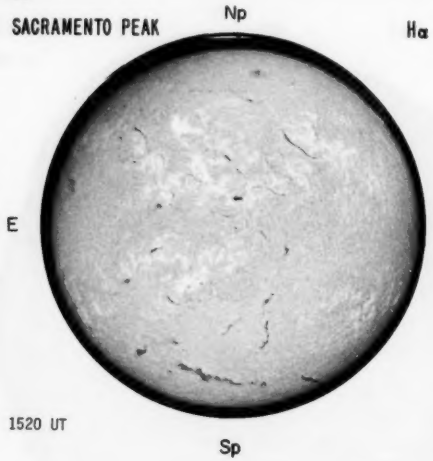
16.05 - 17.77 UT

Sp

15

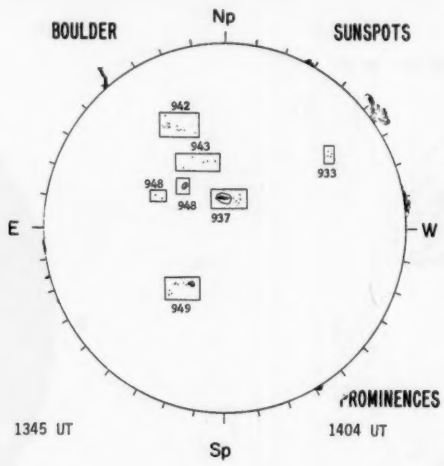
15

SACRAMENTO PEAK



1520 UT

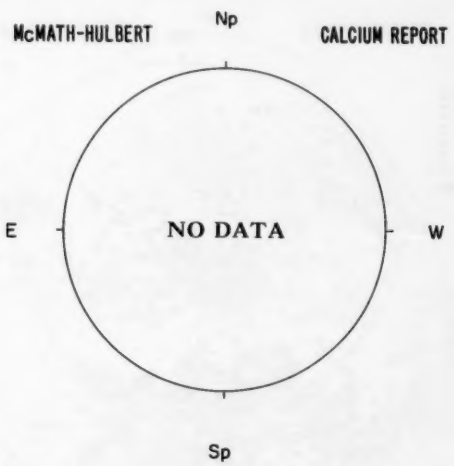
BOULDER



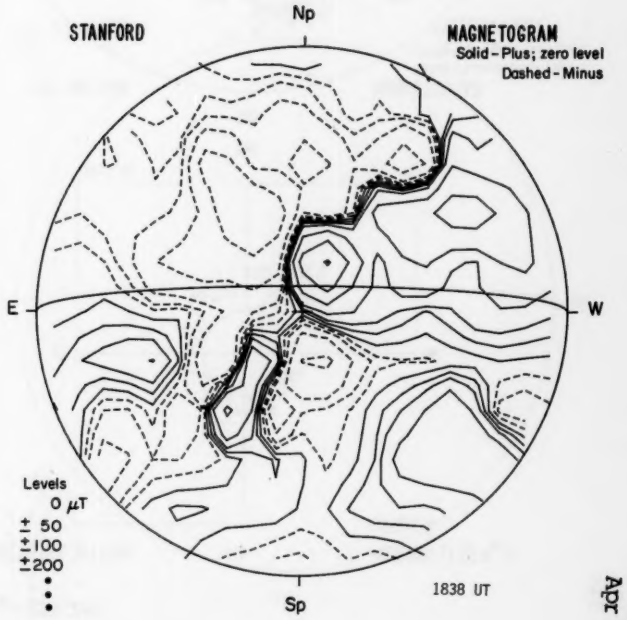
1345 UT

1404 UT

McMATH-HULBERT



STANFORD



1838 UT

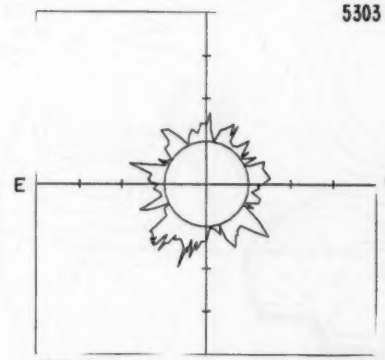
77
Apr 79

APRIL 16, 1979 (P=-26.05, B_o=-5.55, L_o=139.24)

WENDELSTEIN

Np

CORONA (1.15 $R_\odot$)
5303 Å

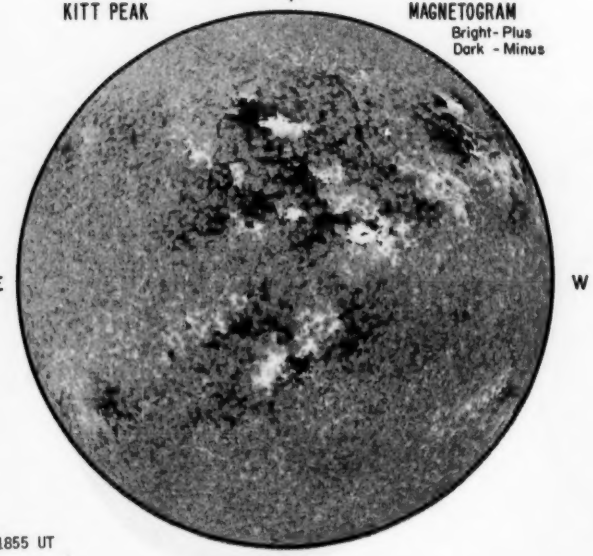


Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



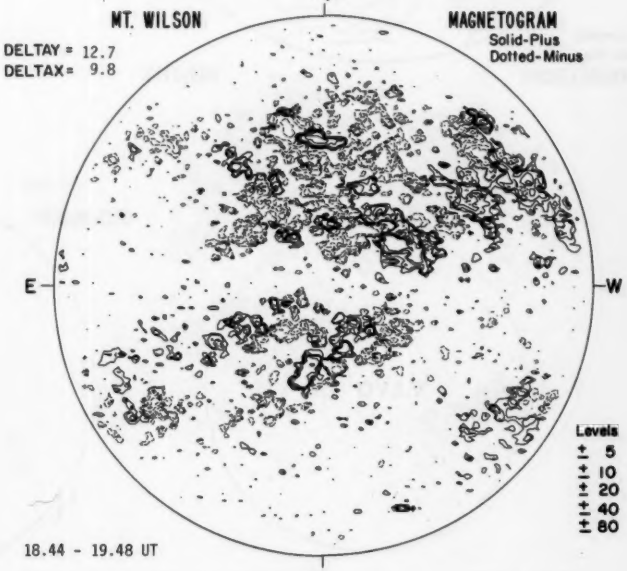
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX= 9.8

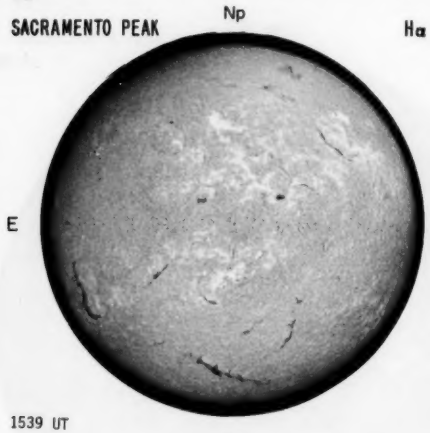


Sp

16

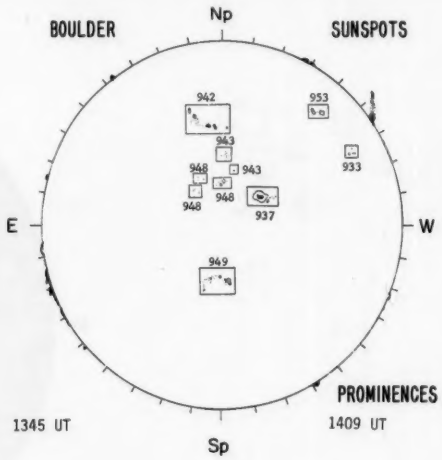
16

SACRAMENTO PEAK



1539 UT

BOULDER

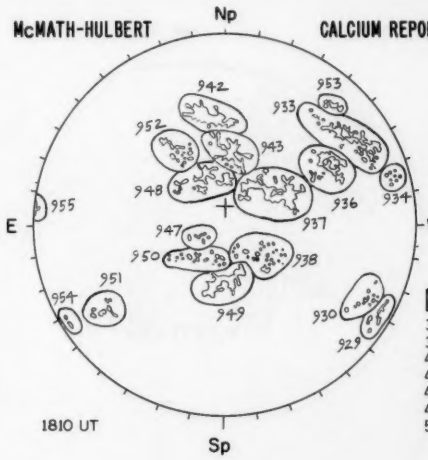


1345 UT

PROMINENCES

1409 UT

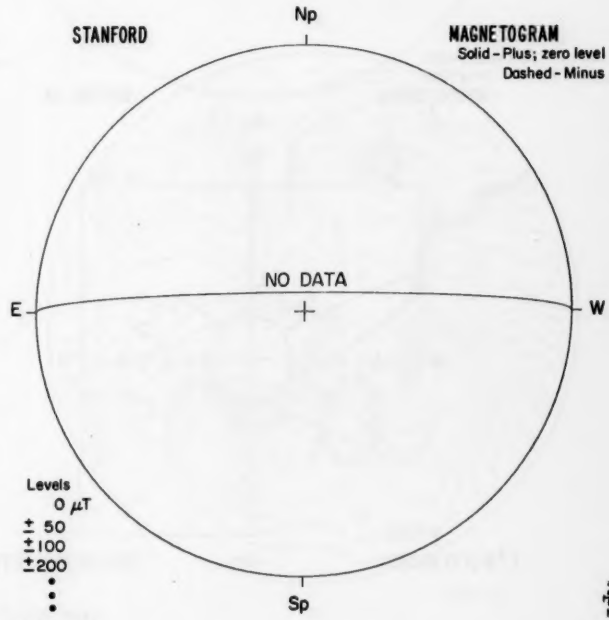
McMATH-HULBERT



1810 UT

FAIR	M
33-	4400-2.5
37-	3000-2.5
42-	2300-3.5
43-	3000-3.0
48-	1700-2.5
49-	1700-3.0
53-	0600-2.5

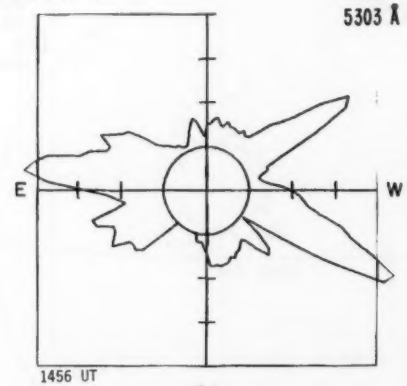
STANFORD



79 Apr 79

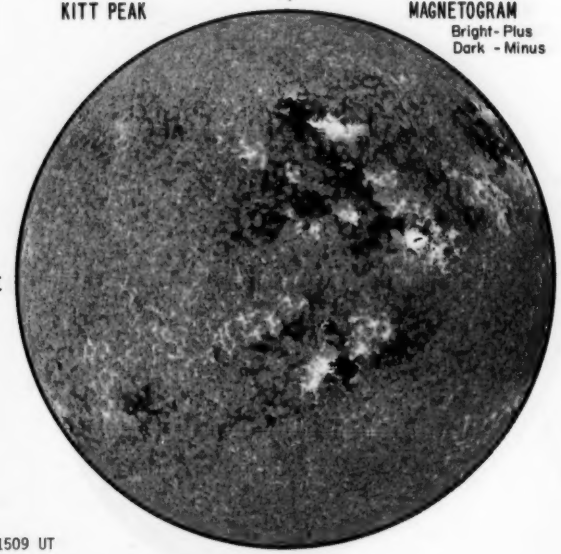
APRIL 17, 1979 (P=-25.99, B_o=-5.47, L_o=126.04)

SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



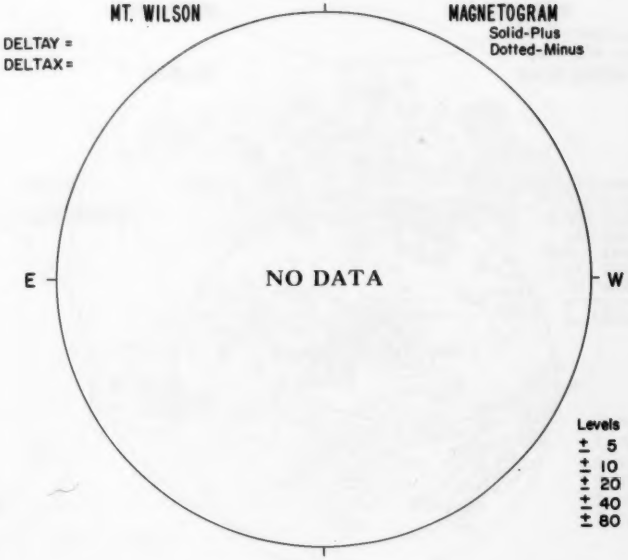
Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus



Sp

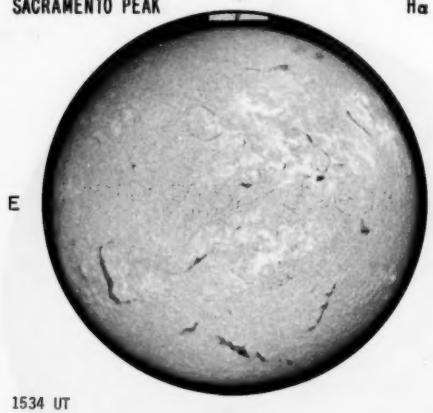
MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus
DELTAY =
DELTAX=



Sp

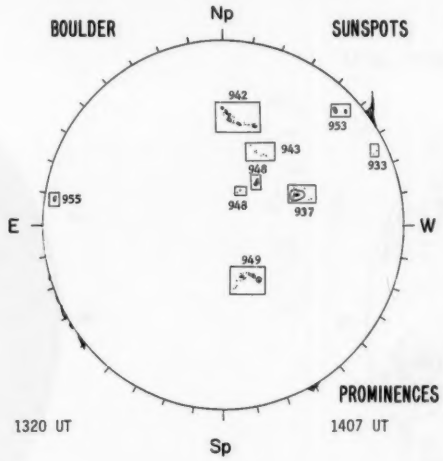
17

SACRAMENTO PEAK — Hα



1534 UT

BOULDER — SUNSPOTS

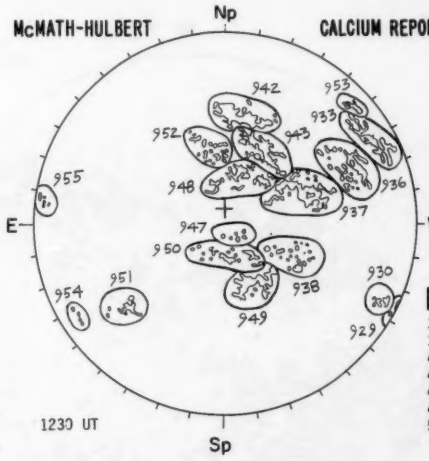


PROMINENCES

1407 UT

1320 UT

McMATH-HULBERT — CALCIUM REPORT

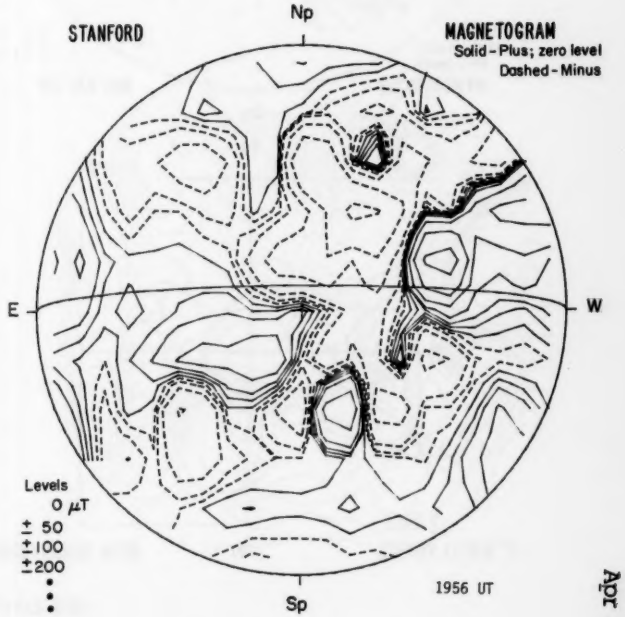


FAIR	M
33-	4100-2.5
37-	2700-3.0
42-	2400-3.5
43-	2500-3.0
48-	1400-2.5
49-	1800-3.0
53-	0900-2.5

1230 UT

STANFORD — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

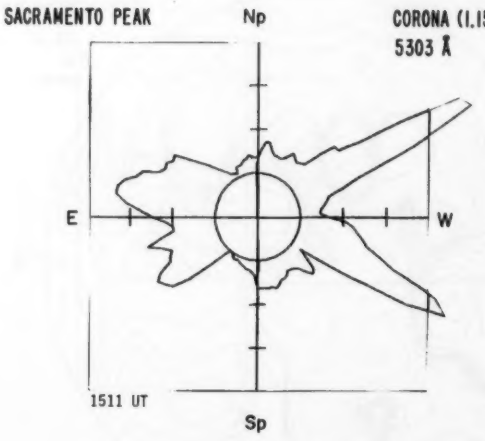


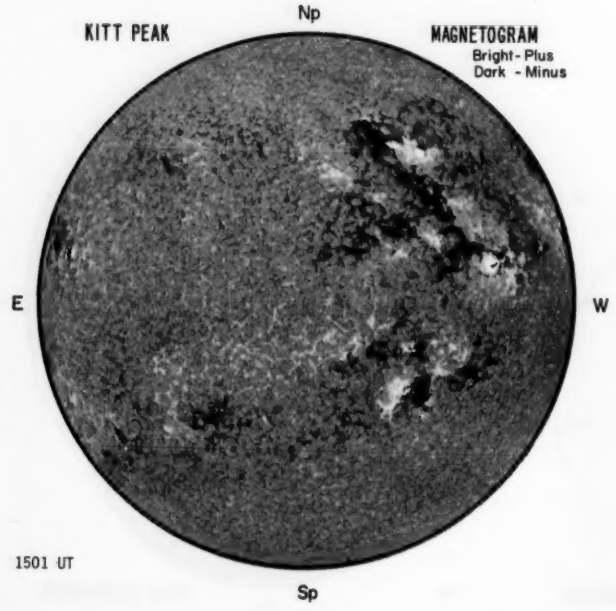
1956 UT

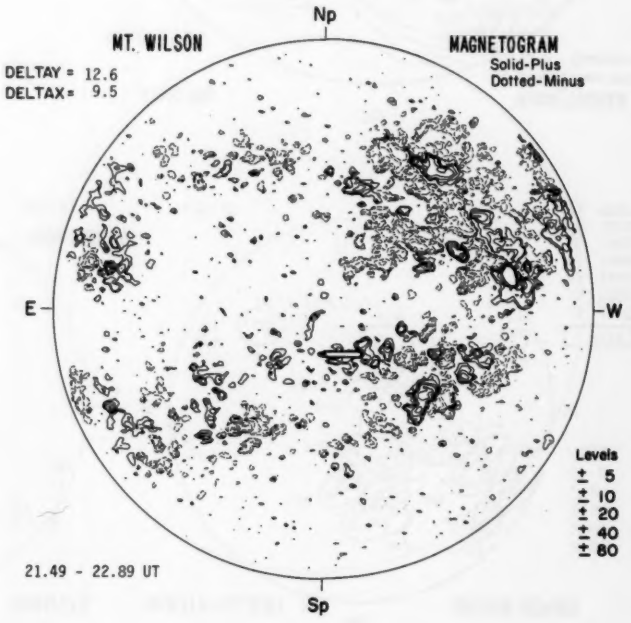
81
Apr 79

APRIL 18, 1979 (P=-25.91, B_o=-5.39, L_o=112.83)

SACRAMENTO PEAK





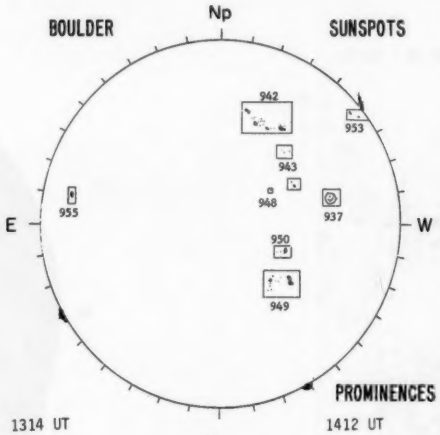


18

SACRAMENTO PEAK Hα

1531 UT

BOULDER SUNSPOTS

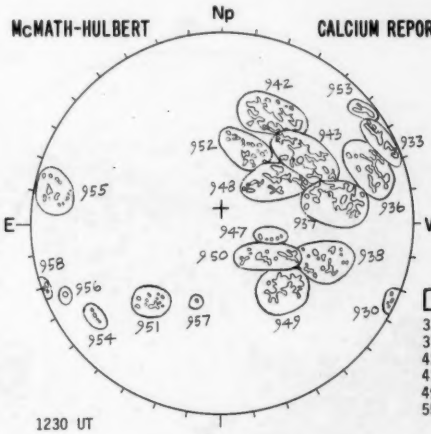


1314 UT

PROMINENCES

1412 UT

McMATH-HULBERT CALCIUM REPORT

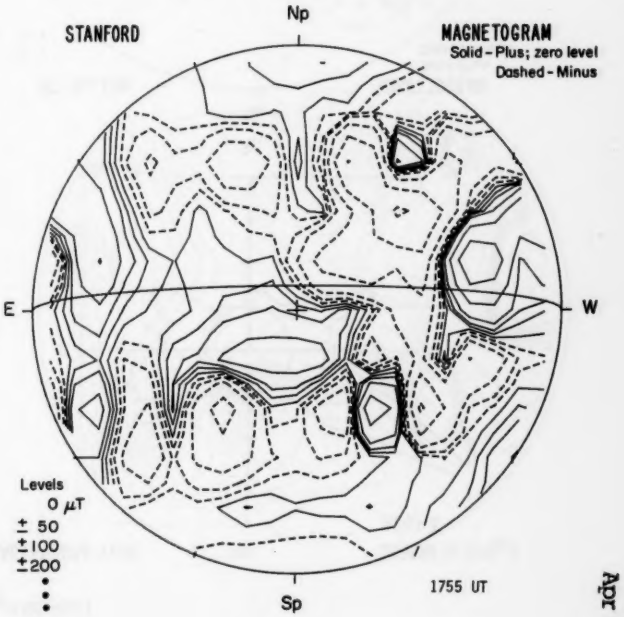


GOOD	M
33- 3200-2.5	
37- 3200-3.0	
42- 2500-3.5	
43- 2400-2.5	
49- 1800-3.0	
55- 0700-2.5	

1230 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

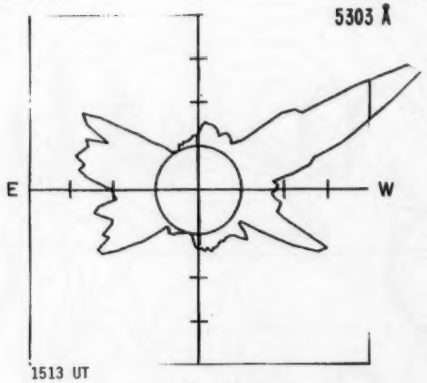


1755 UT

83
Apr 79

APRIL 19, 1979 (P=-25.83, B_o=-5.31, L_o=99.62)

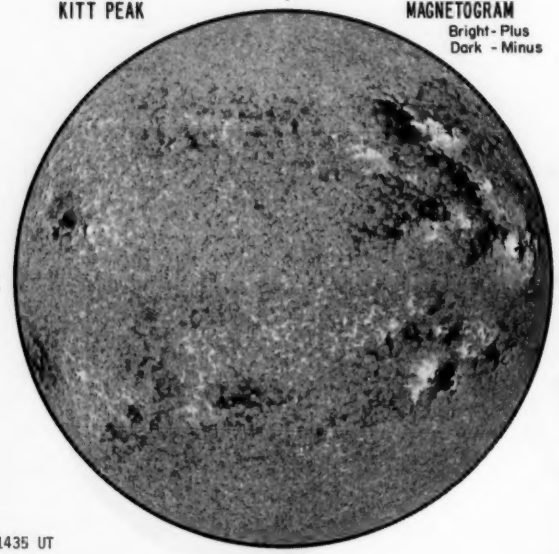
SACRAMENTO PEAK Np CORONA (1.15 $R_\odot$)
5303 Å



1513 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

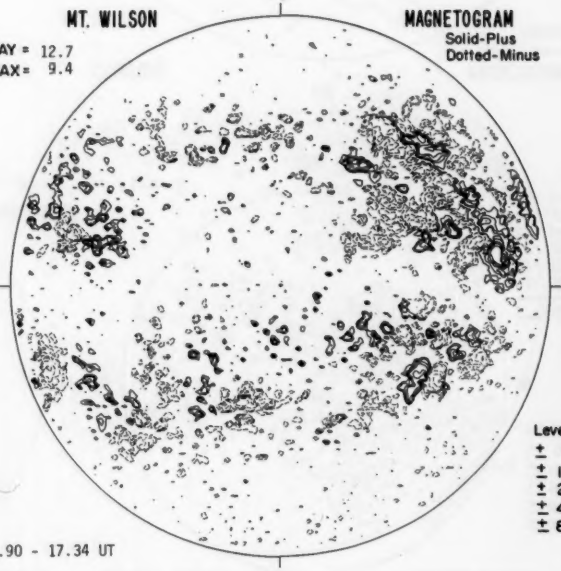


1435 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.4



15.90 - 17.34 UT

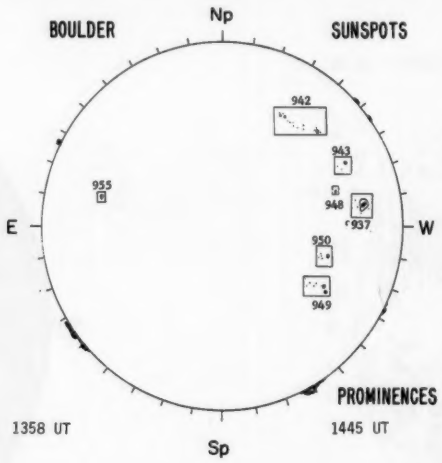
Sp

19

SACRAMENTO PEAK

1602 UT

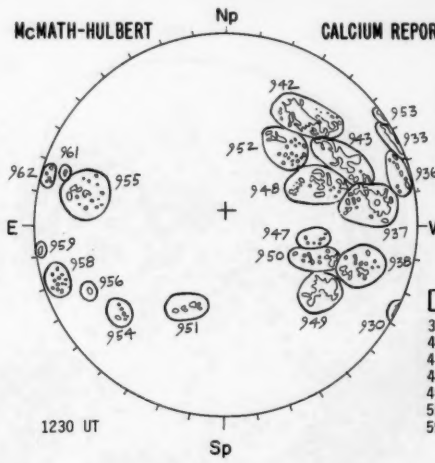
BOULDER



1358 UT

1445 UT

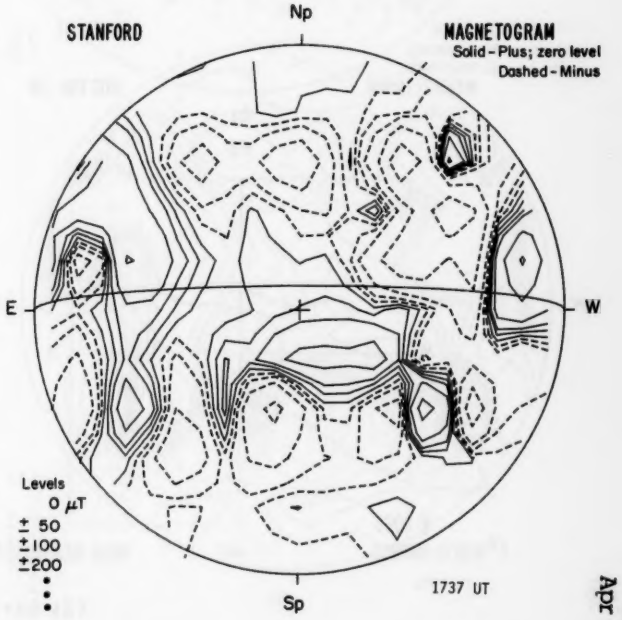
McMATH-HULBERT



1230 UT

FAIR	M
37- 3300-3.5	
42- 2700-3.5	
43- 2400-3.5	
48- 1500-2.5	
49- 1900-3.0	
55- 0600-2.5	
59- 0200-3.5	

STANFORD

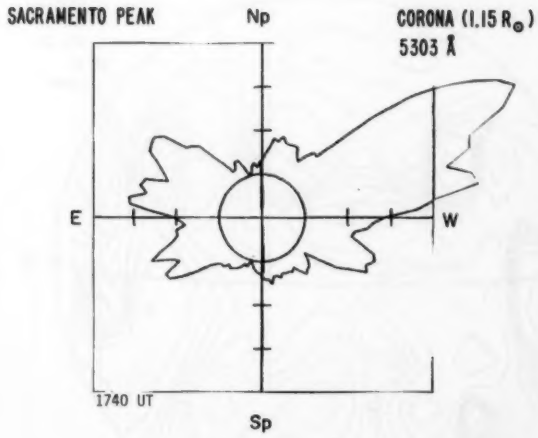


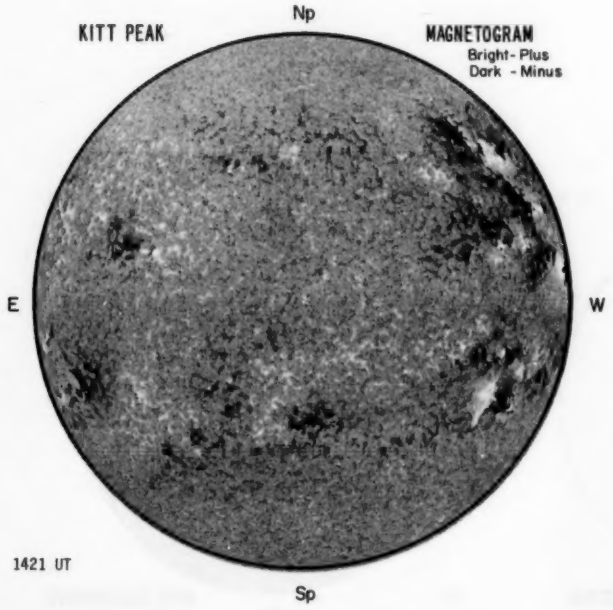
1737 UT

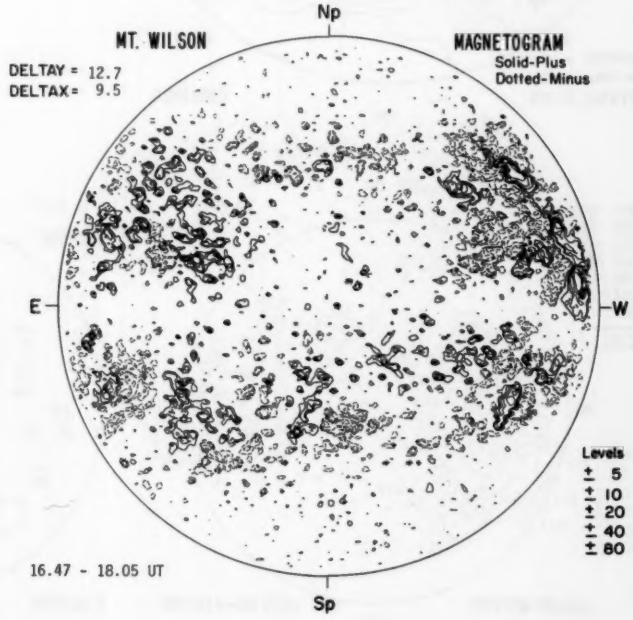
85
Apr 79

APRIL 20, 1979 (P=-25.74, B_o=-5.22, L_o=86.42)

SACRAMENTO PEAK

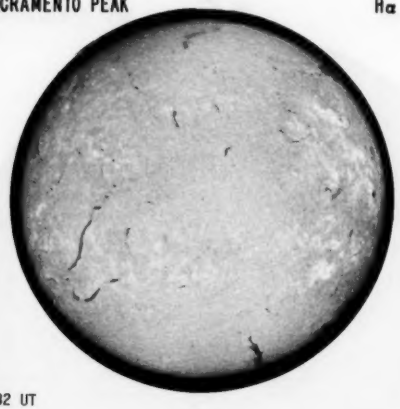






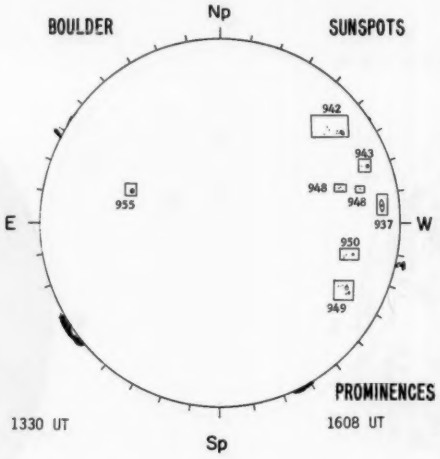
20

SACRAMENTO PEAK Hα



1532 UT

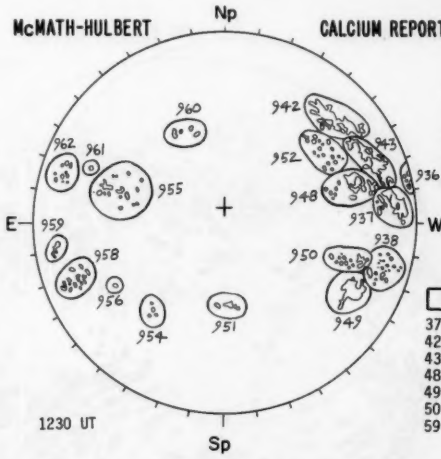
BOULDER SUNSPOTS



PROMINENCES

1330 UT 1608 UT

McMATH-HULBERT CALCIUM REPORT

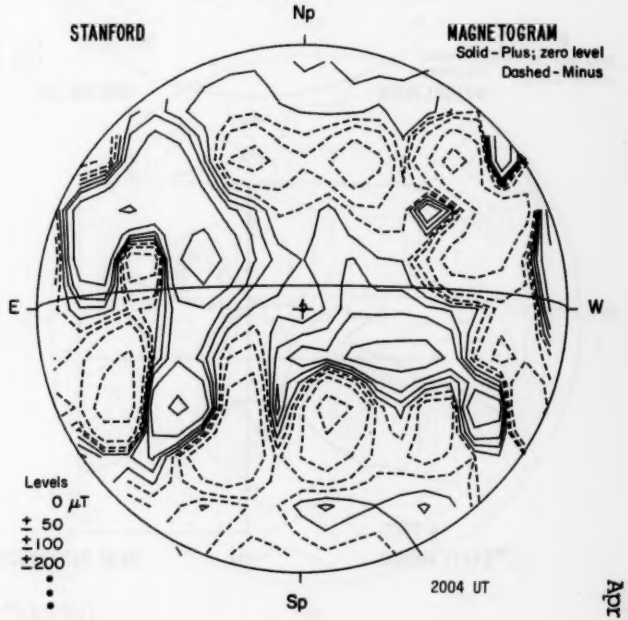


1230 UT

GOOD	M
37- 3500-3.0	
42- 2900-3.5	
43- 2500-3.0	
48- 1700-2.5	
49- 2200-3.0	
50- 0700-2.5	
59- 0500-2.5	

STANFORD MAGNETOGRAM

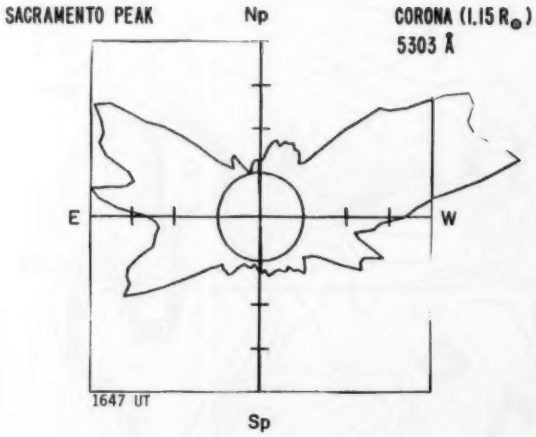
Solid - Plus; zero level
Dashed - Minus

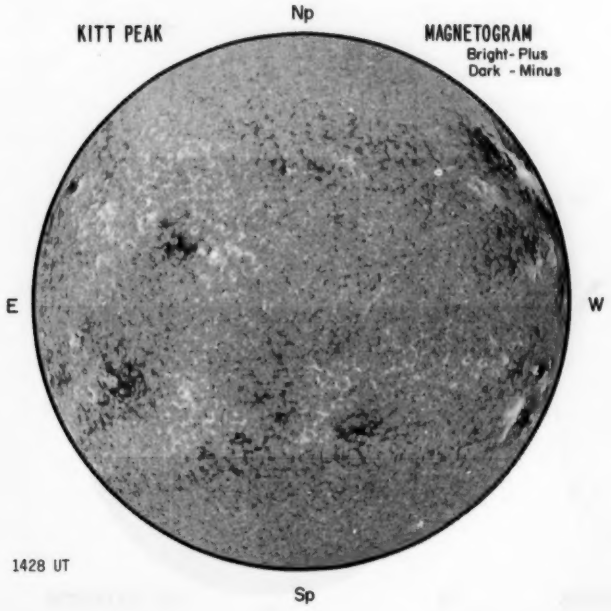


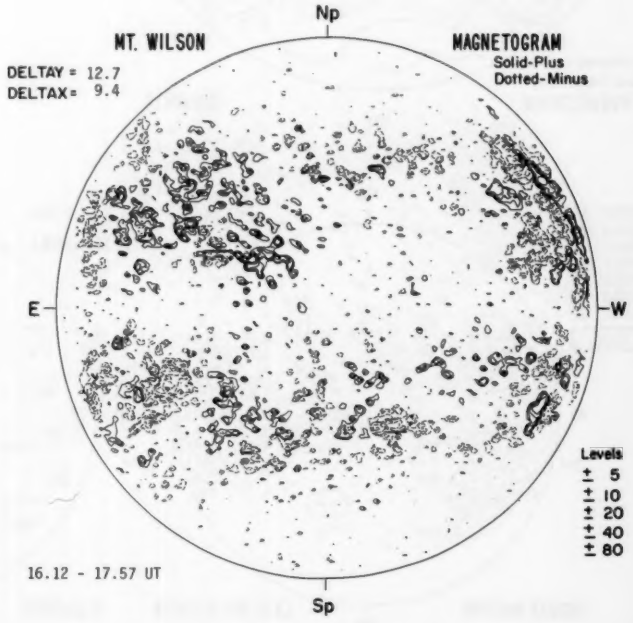
2004 UT

87
Apr 79

APRIL 21, 1979 (P=-25.65, B_o=-5.13, L_o=73.21)





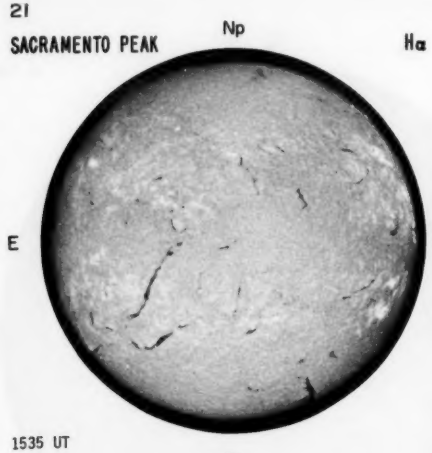


Sp

Sp

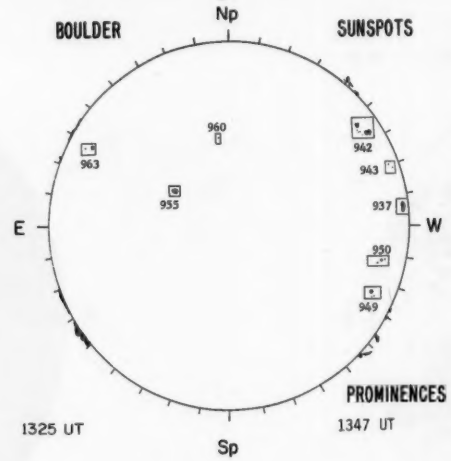
21

SACRAMENTO PEAK



1535 UT

BOULDER



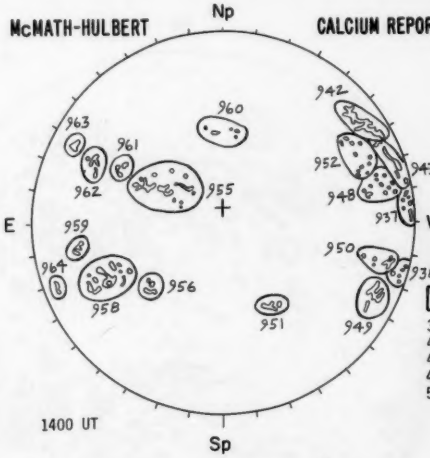
1325 UT

SUNSPOTS

PROMINENCES

1347 UT

McMATH-HULBERT



1400 UT

CALCIUM REPORT

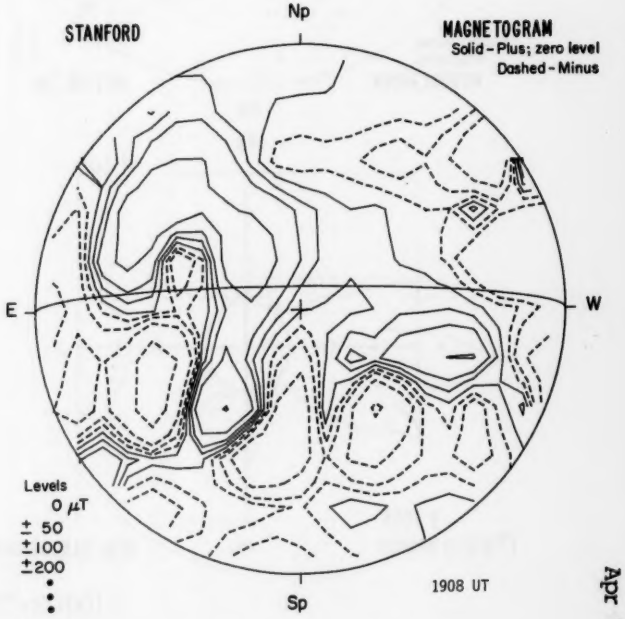
POOR	S
37- 1500-2.5	
42- 2500-3.5	
43- 1600-3.0	
49- 1800-3.0	
50- 0700-2.5	

STANFORD

MAGNETOGRAM

Solid - Plus; zero level

Dashed - Minus



1908 UT

89

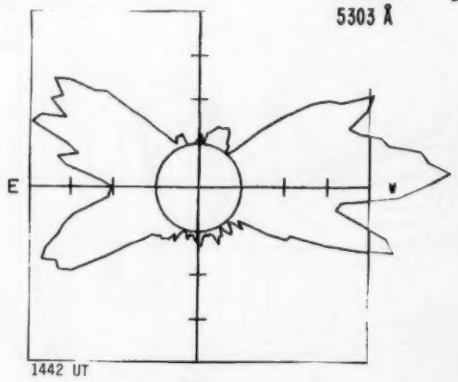
Apr 79

APRIL 22, 1979 (P=-25.54, B_o=-5.05, L_o=60.00)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



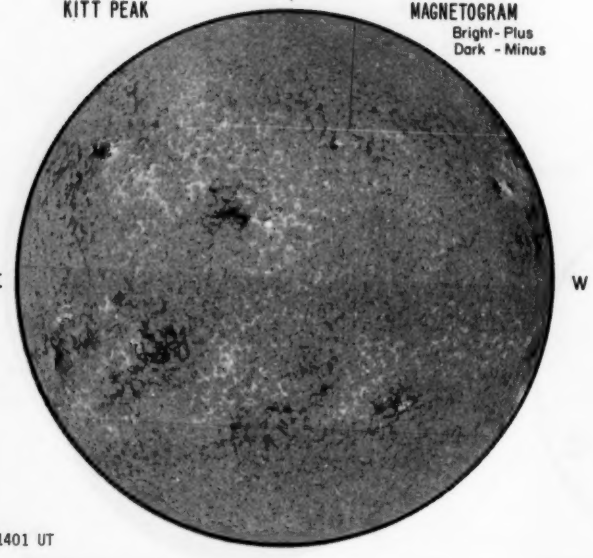
1442 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1401 UT

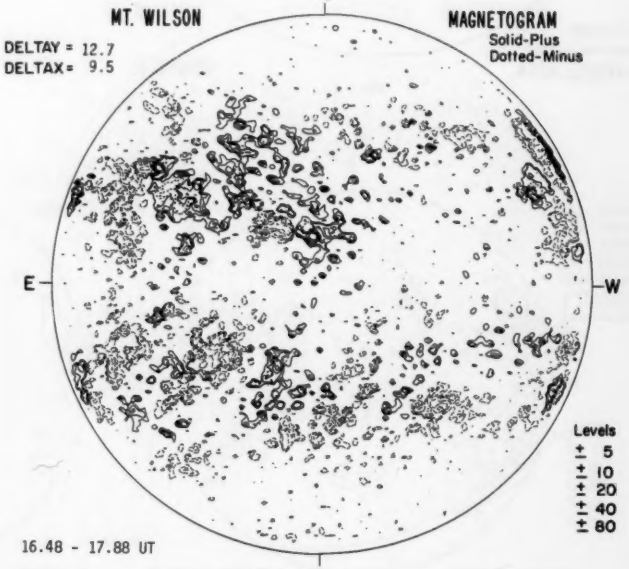
Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.5

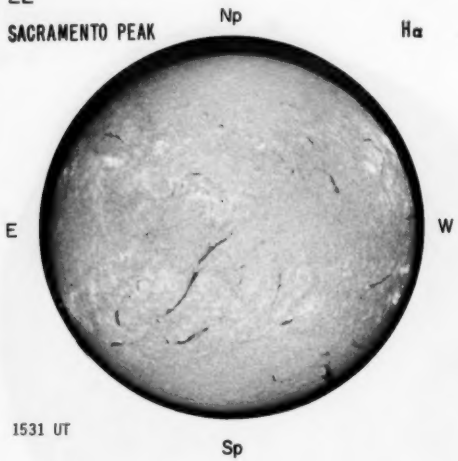


16.48 - 17.88 UT

Sp

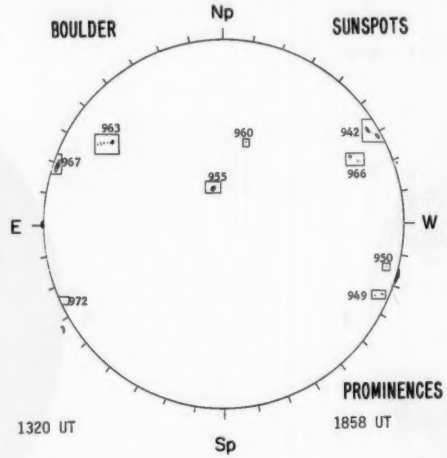
22

SACRAMENTO PEAK Hα



1531 UT

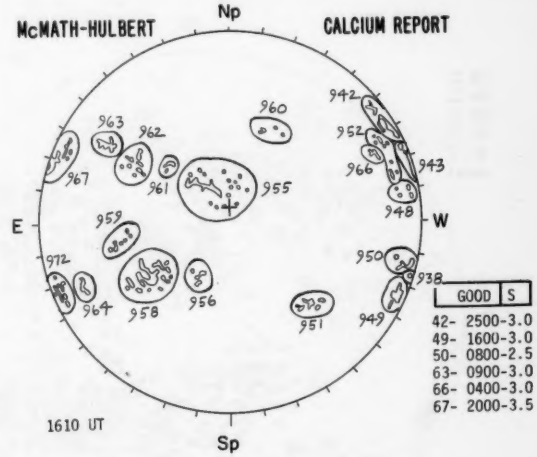
BOULDER SUNSPOTS



PROMINENCES

1320 UT 1858 UT

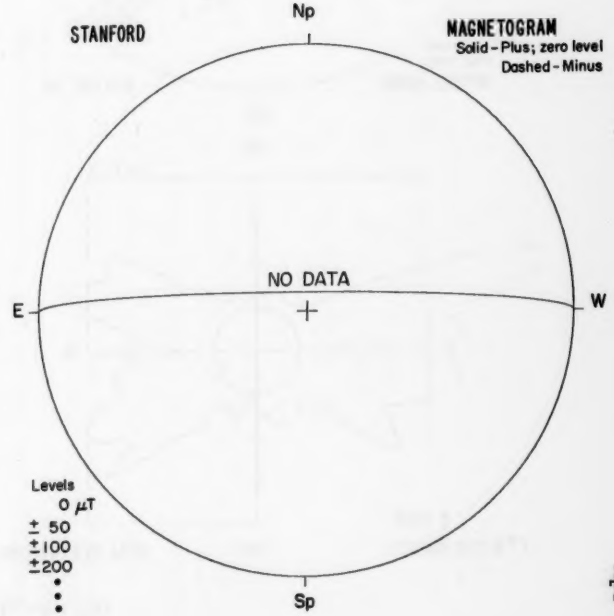
McMATH-HULBERT CALCIUM REPORT



1610 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

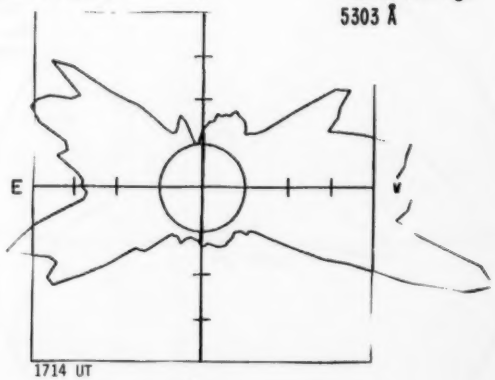


APRIL 23, 1979 (P=-25.43, B_o=-4.96, L_o=46.79)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å



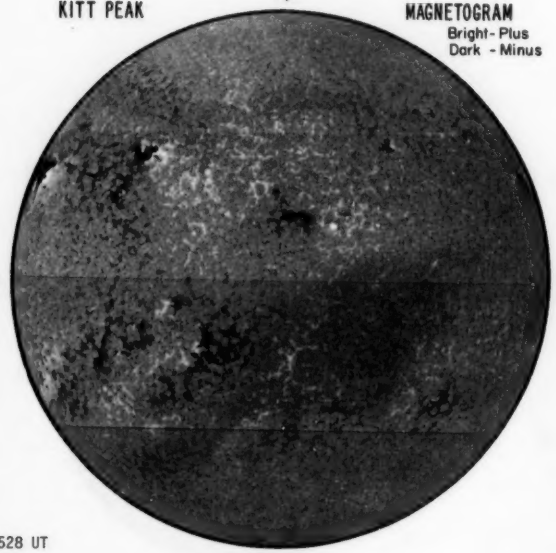
1714 UT

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus



1528 UT

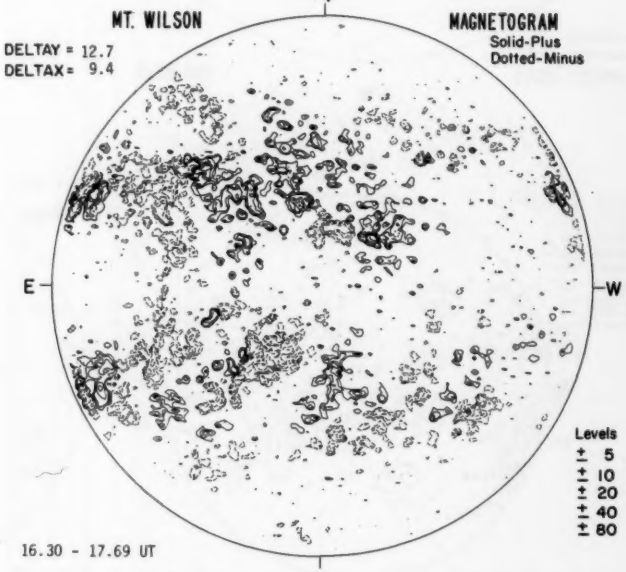
Sp

MT. WILSON

Np

DELTAY = 12.7
DELTAX = 9.4

MAGNETOGRAM
Solid-Plus
Dotted-Minus



16.30 - 17.69 UT

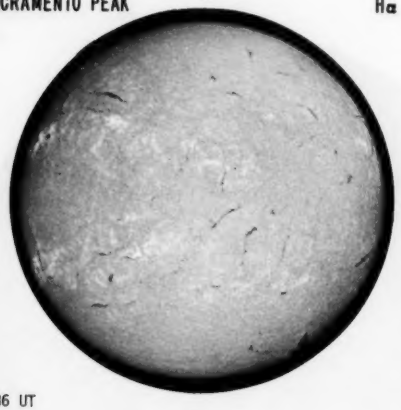
Sp

Sp

Sp

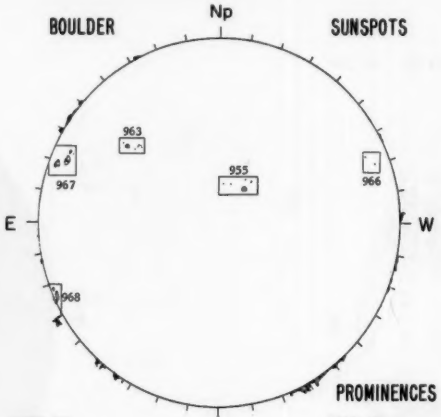
23

SACRAMENTO PEAK



1536 UT

BOULDER

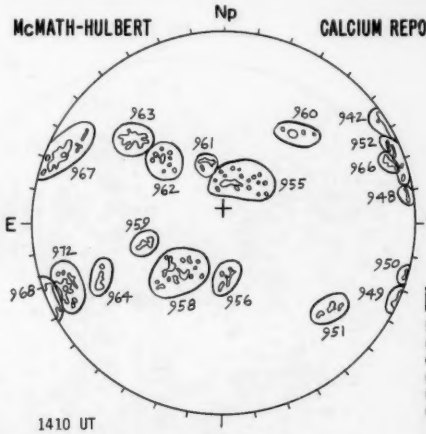


1400 UT

PROMINENCES

1430 UT

McMATH-HULBERT



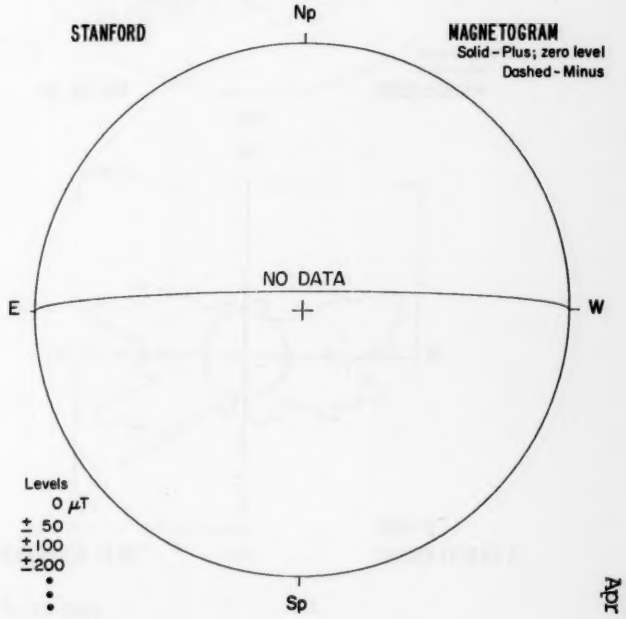
1410 UT

CALCIUM REPORT

GOOD	S

51- 0400-2.5
60- 0300-2.5
63- 1400-3.0
66- 0900-3.0
67- 4000-3.5
68- 4500-3.5

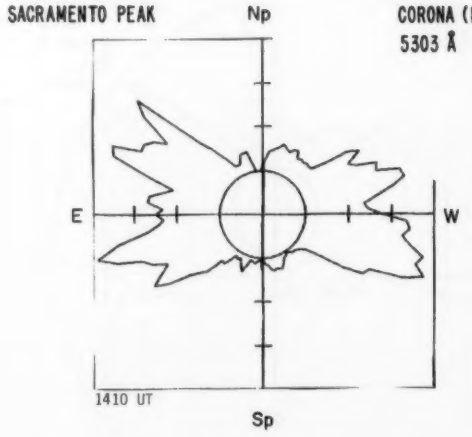
STANFORD

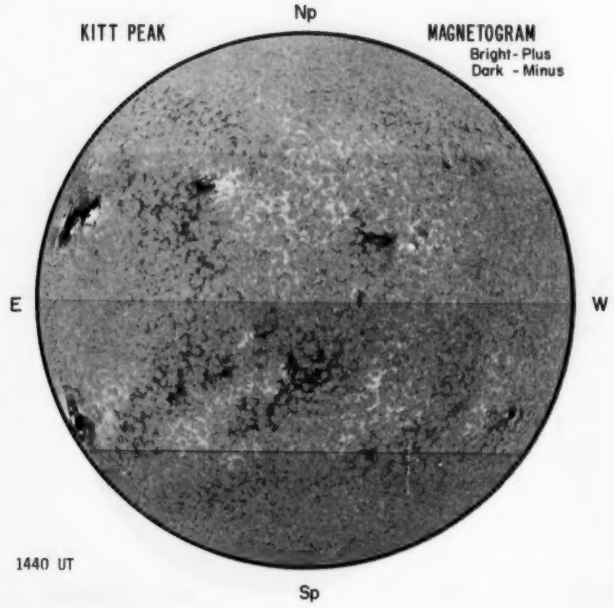


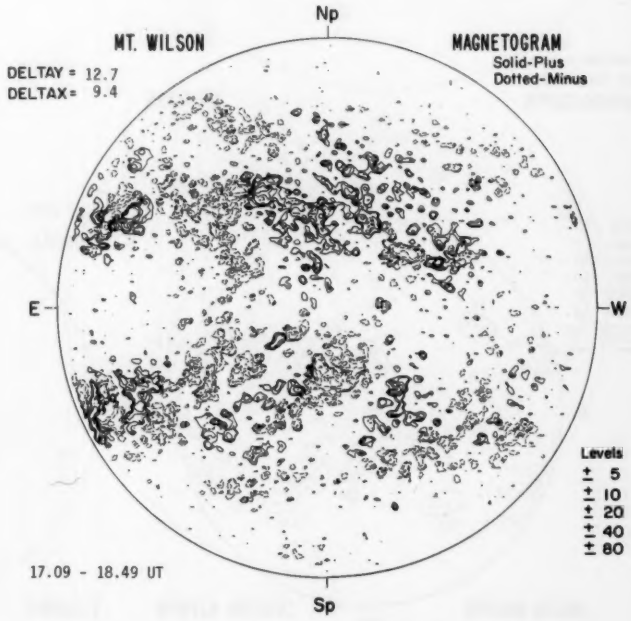
93
Apr 79

APRIL 24, 1979 (P=-25.31, B_o=-4.87, L_o=33.58)

SACRAMENTO PEAK





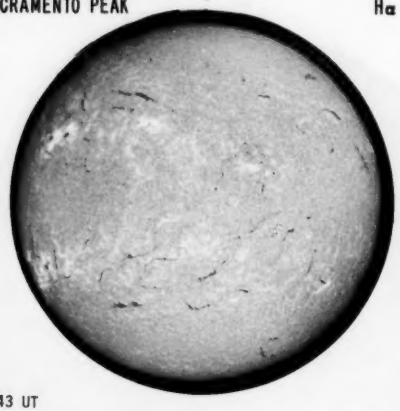


Sp

Sp

24

SACRAMENTO PEAK Np Hα

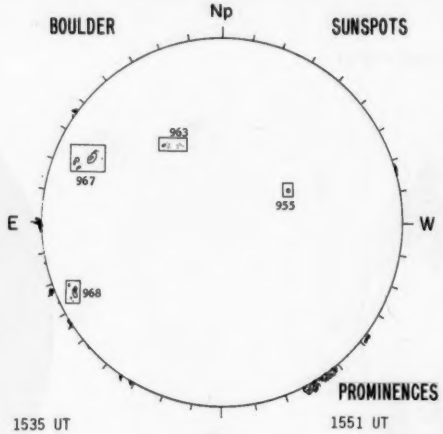


E W

1543 UT

Sp

BOULDER Np SUNSPOTS



E W

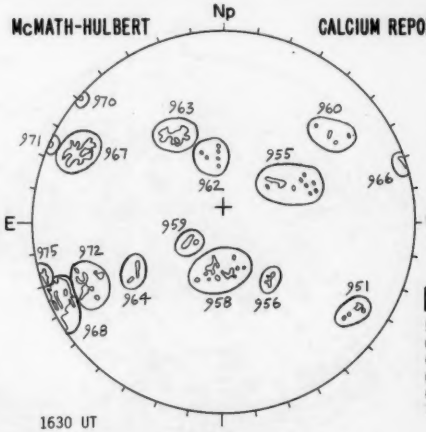
1535 UT

Sp

PROMINENCES

1551 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

1630 UT

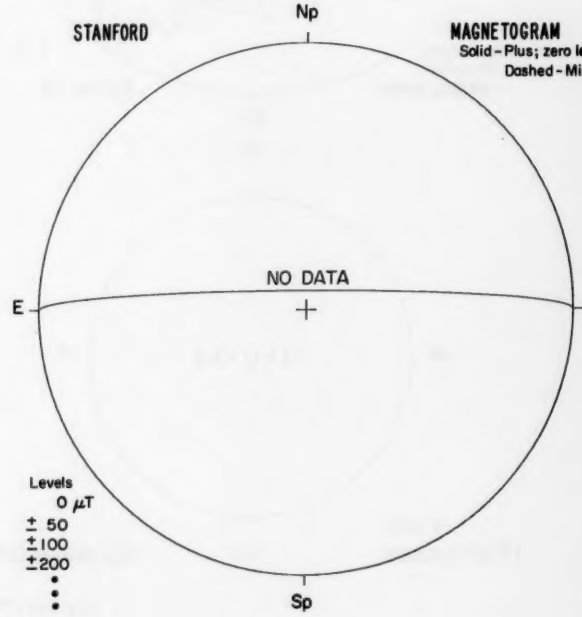
Sp

POOR	S

51- 0500-2.5
63- 1500-2.5
66- 0700-2.5
67- 3200-3.0
68- 6100-3.0
75- 0700-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
• • •

Sp

95
Apr 79

APRIL 25, 1979 (P=-25.19, B_o=-4.77, L_o=20.37)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright-Plus
Dark - Minus

E — W

1549 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

E — W

Levels
± 5
± 10
± 20
± 40
± 80

17.70 - 18.95 UT

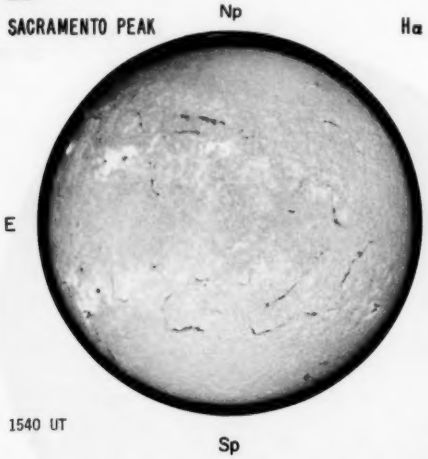
Sp

Sp

Sp

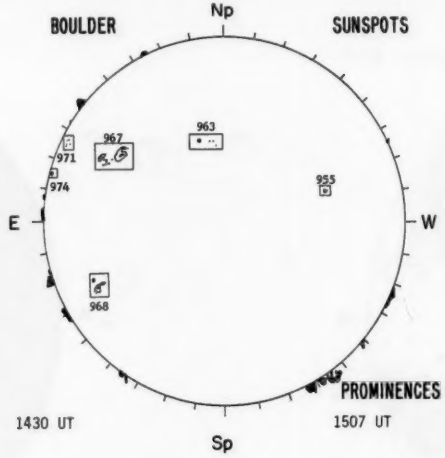
25

SACRAMENTO PEAK



1540 UT

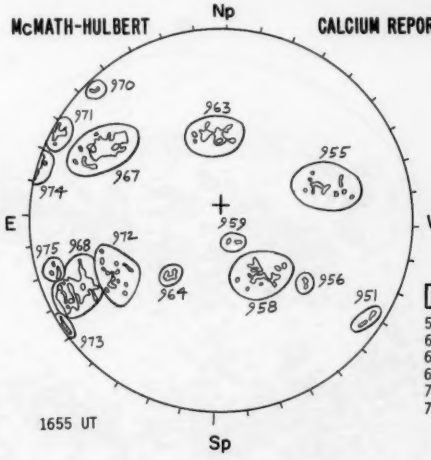
BOULDER



1430 UT

1507 UT

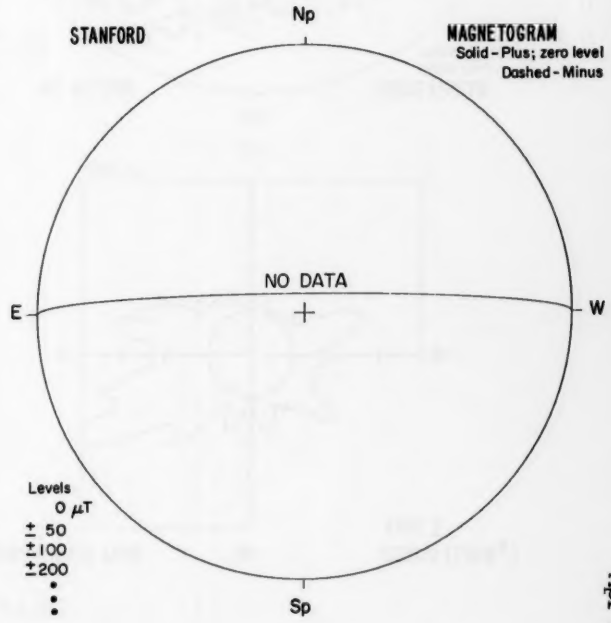
McMATH-HULBERT



1655 UT

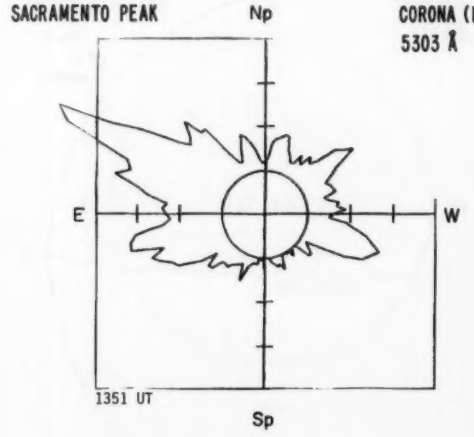
FAIR	S
55-	0800-2.5
63-	1500-3.0
67-	4500-3.0
68-	6500-3.0
71-	1600-3.5
75-	0600-2.5

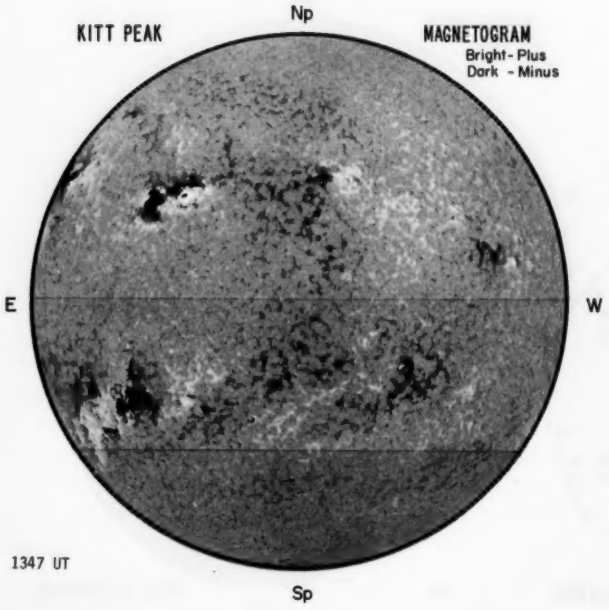
STANFORD

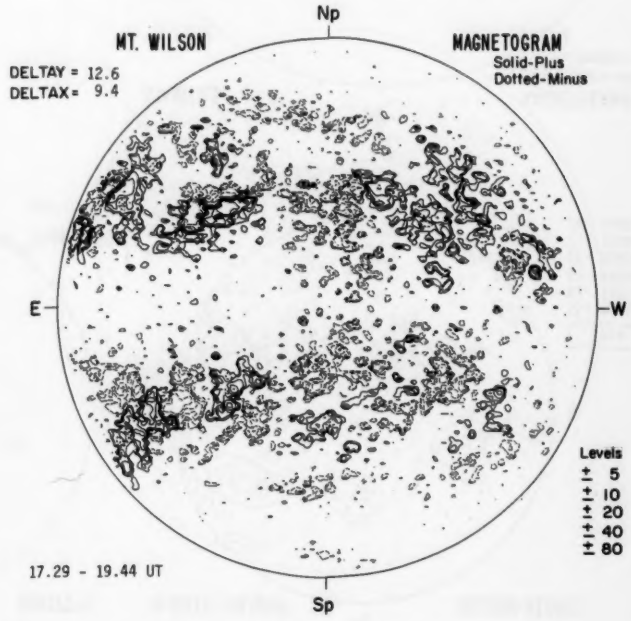


97
Apr 79

APRIL 26, 1979 (P =-25.06, B_o =-4.68, L_o = 7.16)





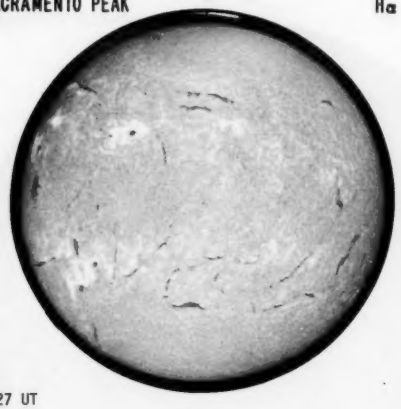


Sp

Sp

26

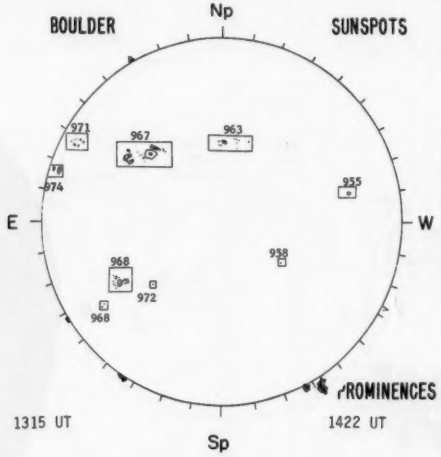
SACRAMENTO PEAK



Hα

1527 UT

BOULDER



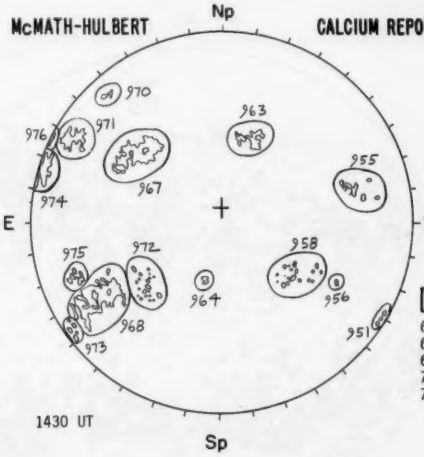
SUNSPOTS

PROMINENCES

1315 UT

1422 UT

McMATH-HULBERT

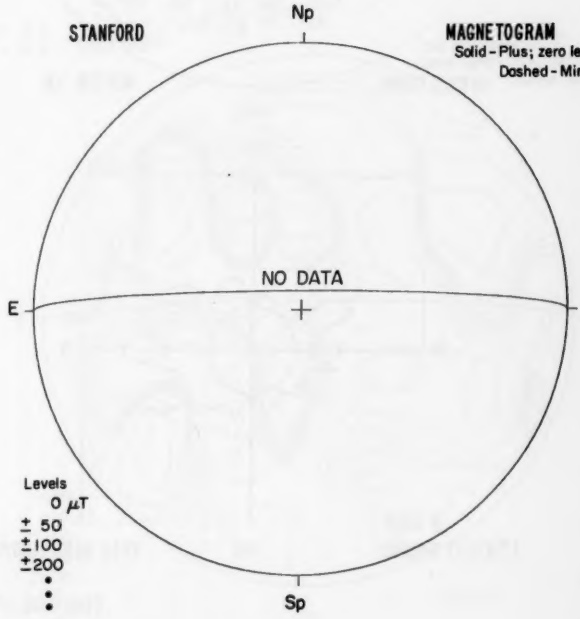


CALCIUM REPORT

FAIR	M
63- 1500-3.0	
67- 4500-3.0	
68- 6700-3.0	
71- 2000-3.5	
74- 3500-2.0	

1430 UT

STANFORD



MAGNETOGRAM

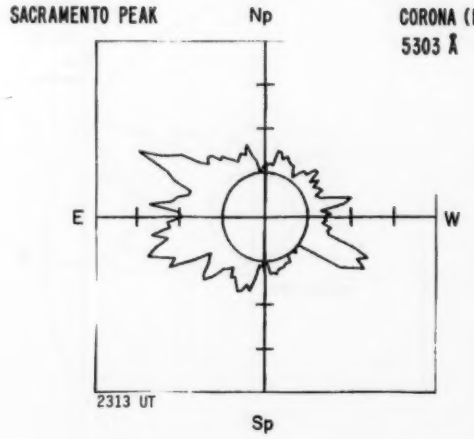
Solid - Plus; zero level

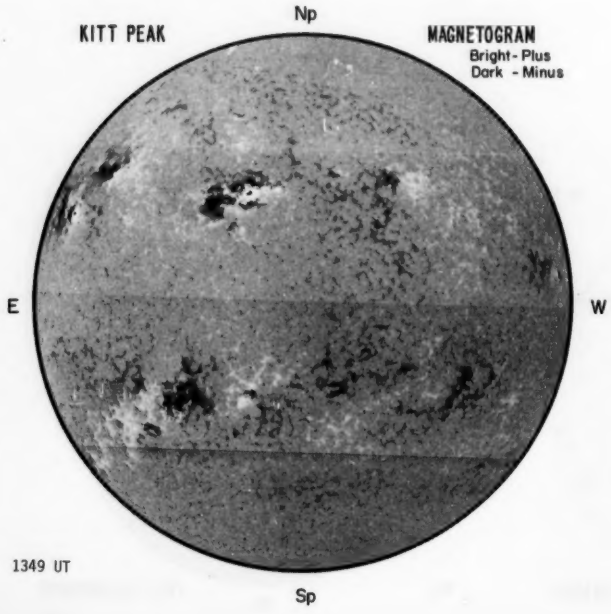
Doshed - Minus

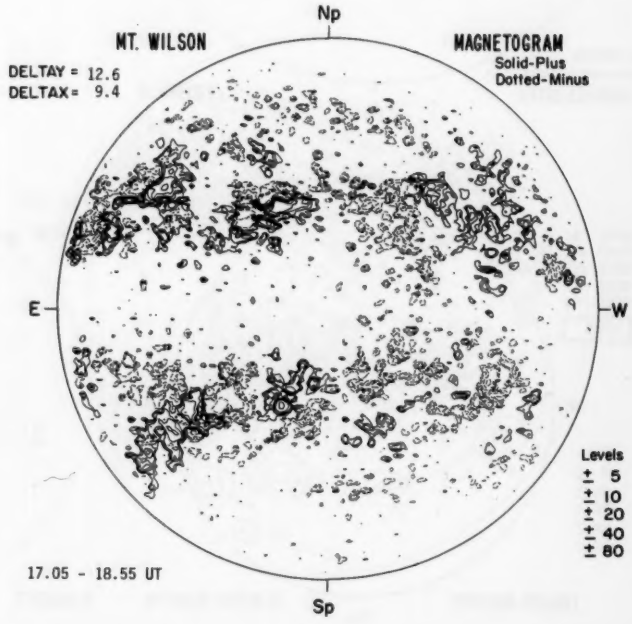
99

Apr 79

APRIL 27, 1979 (P=-24.92, B_o=-4.59, L_o=353.95)







Sp

Sp

27

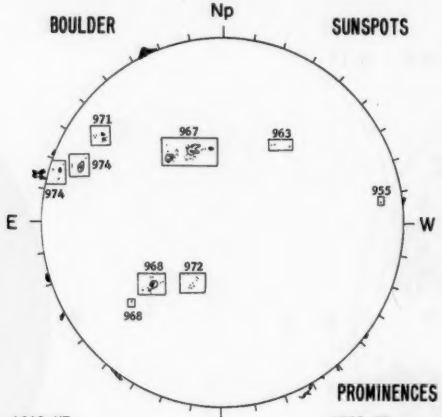
SACRAMENTO PEAK Np Hα

E W

1512 UT

Sp

BOULDER Np SUNSPOTS



E W

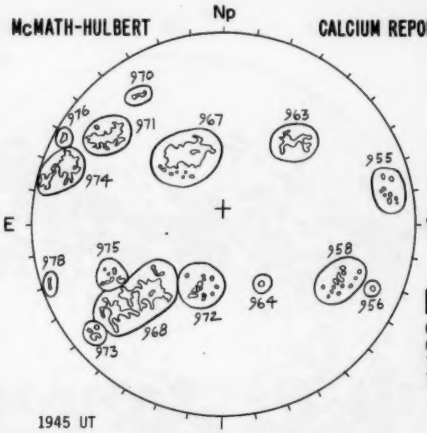
1610 UT

Sp

PROMINENCES

1529 UT

McMATH-HULBERT Np CALCIUM REPORT



E W

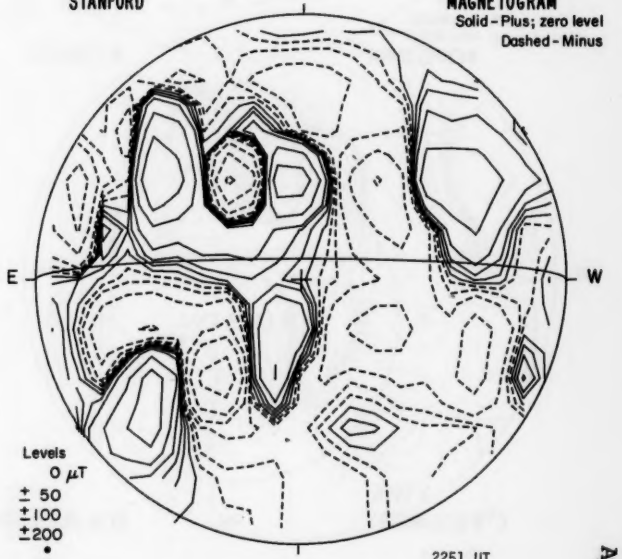
POOR	M
67-	4500-3.5
68-	5800-3.0
71-	2400-3.0
74-	5000-3.0

1945 UT

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
• • •

2251 UT

Sp

APRIL 28, 1979 (P=-24.77, B_o=-4.49, L_o=340.73)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E

NO DATA

W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E

W

1355 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.4

E

W

Levels
± 5
± 10
± 20
± 40
± 80

17.94 - 19.54 UT

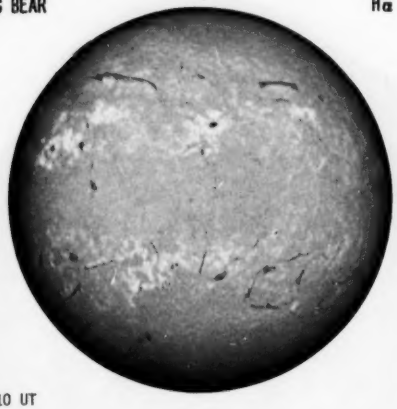
Sp

Sp

Sp

28

BIG BEAR Np Hα

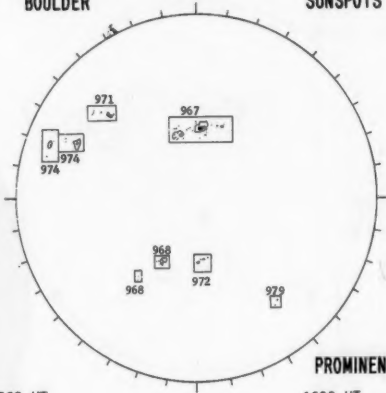


E W

2210 UT

Sp

BOULDER Np SUNSPOTS



E W

1530 UT

Sp

PROMINENCES

1600 UT

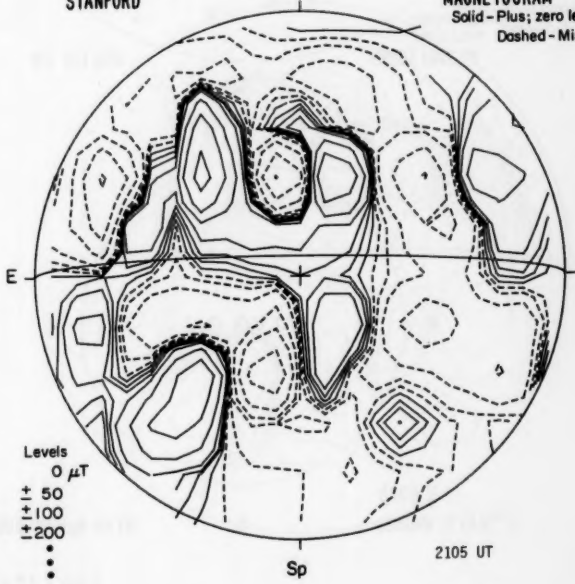
McMATH-HULBERT Np CALCIUM REPORT

E W

Sp

Photographs From —
Big Bear Solar Observatory
Big Bear City, California
Date: 4-28-79

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



Sp

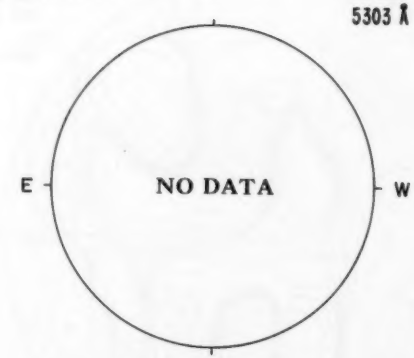
2105 UT

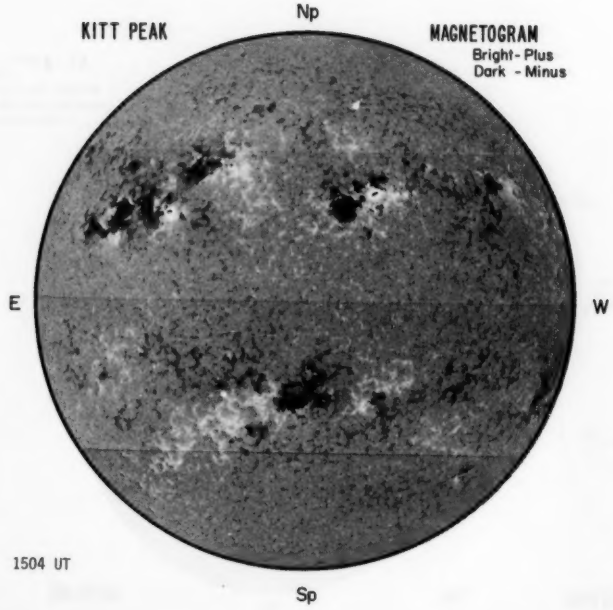
103
Apr 79

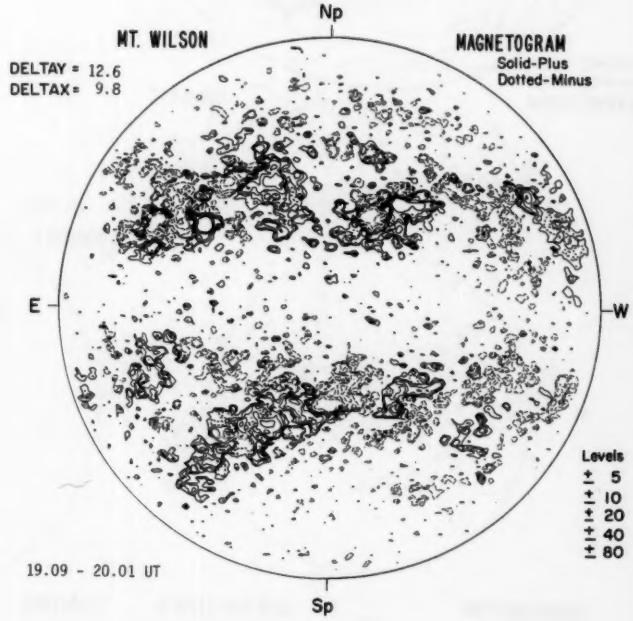
APRIL 29, 1979 (P=-24.61, B_o=-4.39, L_o=327.52)

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å







Sp

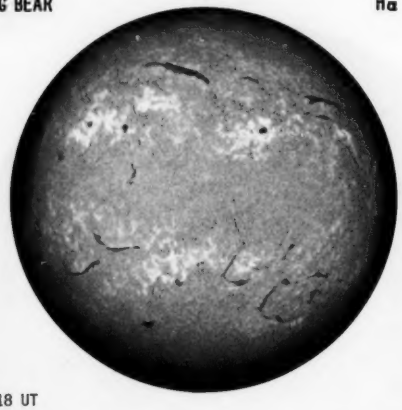
Sp

29

BIG BEAR

Np

Hα



E W

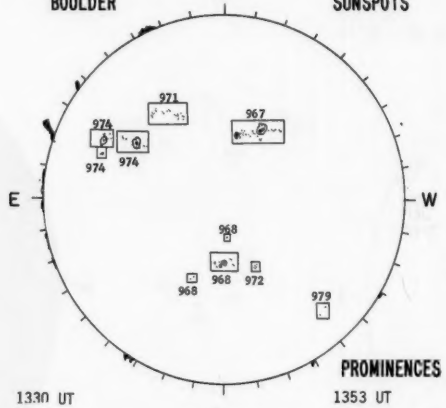
1918 UT

Sp

BOULDER

Np

SUNSPOTS



E W

PROMINENCES

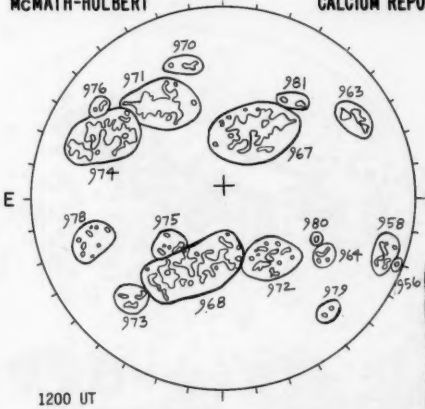
1330 UT 1353 UT

Sp

McMATH-HULBERT

Np

CALCIUM REPORT



E W

FAIR	S
63-	1300-3.0
67-	4500-3.5
68-	5500-3.0
71-	3200-3.5
74-	5500-3.5
79-	0200-2.5
81-	0300-2.5

1200 UT

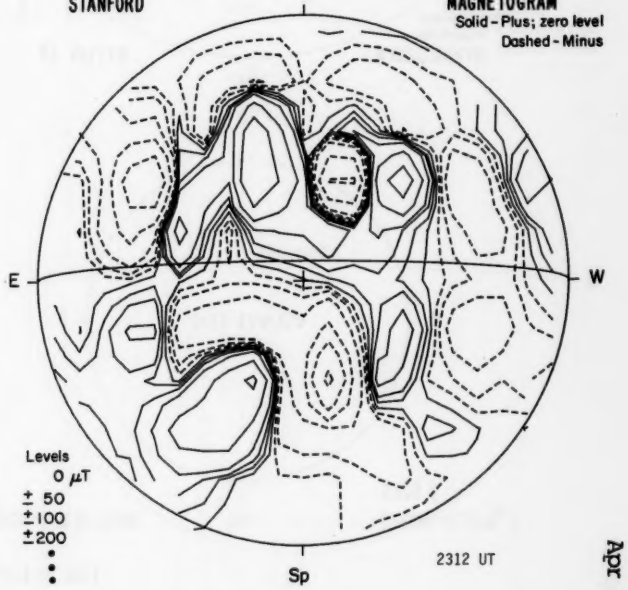
Sp

Photographs From —
Big Bear Solar Observatory
Big Bear City, California
Date: 4-29-79

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



E W

Levels
0 μT
± 50
±100
±200
•
•
•

2312 UT

Sp

105
Apr 79

APRIL 30, 1979 (P = -24.45, B_o = -4.30, L_o = 314.30)

SACRAMENTO PEAK

Np

CORONA (1.15 $R_\odot$)
5303 Å

E — NO DATA — W

Sp

KITT PEAK

Np

MAGNETOGRAM
Bright - Plus
Dark - Minus

E — W

1428 UT

Sp

MT. WILSON

Np

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.6
DELTAX = 9.5

E — W

Levels
± 5
± 10
± 20
± 40
± 80

16.92 - 18.36 UT

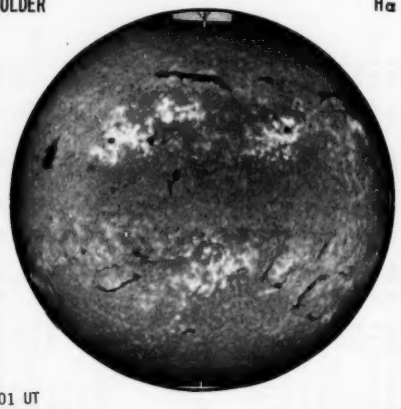
Sp

Sp

Sp

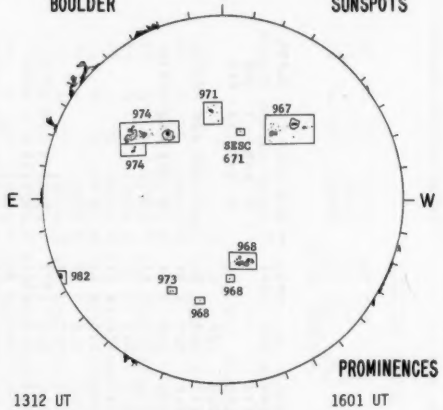
30

BOULDER



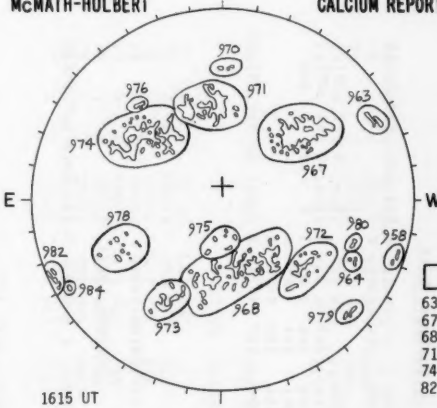
1601 UT

BOULDER



1312 UT 1601 UT

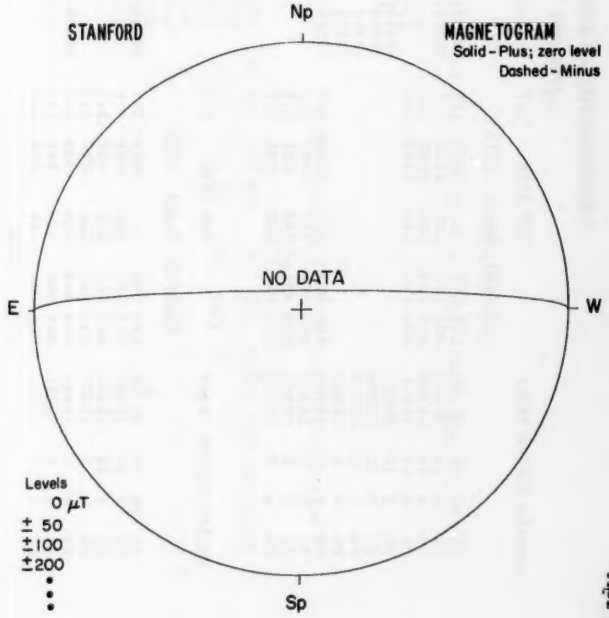
McMATH-HULBERT



1615 UT

FAIR	S
63-	0900-2.5
67-	4500-3.0
68-	4800-2.5
71-	3200-3.5
74-	5000-3.5
82-	0800-2.5

STANFORD



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MCMATH REGION 15915 CMP DATE 1.3 RETURN OF REGION 15860 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	3	26	15915	N35 E74	335	1200	3.5
79	3	27	15915	N34 E60	336	1800	3.5
79	3	28	15915	N34 E47	336	2300	3.5
79	3	30	15915				
79	3	31	15915				
79	4	1	15915				
79	4	2	15915				
79	4	3	15915	N34 W29	332	2900	3.5
79	4	5	15915	N34 W57	332	1900	2.5
79	4	6	15915	N35 W71	330	900	2.0
79	4	7	15915	N35 W81	330	500	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20529	N32 E65	344	(AP)	2				
	N31 E40				B	70	12	DSI
20529	N31 E14	342	B	3	B	80	10	DSI
20529	N32 E00	344	(B)	3	R	30	9	BXO
20529	N32 W11	339	(AP)	3				
20529	N33 W24	339	(AP)	2				
20529	N33 W35	337	(AP)	3				

MCMATH REGION 15922 CMP DATE 2.5 RETURN OF REGION 15862 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	3	27	15922	N13 E66	330	400	1.0
79	3	28	15922	N13 E53	330	400	1.0
79	4	3	15922	N13 W13	316	500	2.5
79	4	5	15922	N13 W42	317	500	2.0
79	4	6	15922	N14 W55	314	500	1.5
79	4	7	15922	N14 W65	314	500	1.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20548	N12 W37	313	(AF)	2				

MCMATH REGION 15918 CMP DATE 2.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	3	26	15918	S25 E85	324	1500	2.5
79	3	27	15918	S27 E77	319	3800	3.5
79	3	28	15918	S27 E65	318	5000	4.0
79	3	30	15918				
79	3		15918				
79	3	31	15918				
79	3		15918				
79	4	1	15918				
79	4		15918				
79	4	2	15918				
79	4		15918				
79	4		15918				
79	4	3	15918	S27 W11	314	6400	4.0
79	4		15918				
79	4		15918				
79	4	4	15918				
79	4		15918				
79	4	5	15918	S27 W39	314	6600	3.0
79	4		15918				
79	4	6	15918	S27 W52	311	6500	3.0
79	4		15918				
79	4		15918				
79	4	7	15918	S27 W63	312	6500	3.5
79	4		15918				
79	4		15918				
79	4	8	15918				
79	4		15918				
79	4		15918				
79	4	9	15918	S27 W90	311	1100	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20530	S24 E80	329	(AP)	3				
	S24 E70				B	240	7	EHO
	S24 E61				B	570	17	FKO
20530	S26 E29	327	Y	4				
20533	S22 E37	319	B	3	B	980	40	FKI
20530	S27 E17	327	(D)	5				
20533	S22 E26	318	(B)	4	R	840	42	FKI
20530	S27 E06	322	(D)	5				
20533	S23 E13	315	(D)	4				
20530	S26 W07	322	(D)	4				
20533	S22 E00	315	(D)	4				
20541	S32 W03	318	(B)	2				
20530	S26 W20	322	(C)	5				
20533	S23 W13	315	(BY)	4	B	1070	59	FKI
20541	S32 W17	319	(AP)	3	B	10	2	BXO
20530	S27 W34	323	(D)	4				
20533	S23 W26	315	(BY)	4	B	1020	56	FKI
20530	S27 W45	321	(D)	4				
20533	S23 W40	316	(Y)	4	B	840	57	EKI
20530	S27 W59	322	(D)	4	B	1080	34	FKI
20533	S22 W54	317	(BD)	3				
20541	S32 W55	318	(AP)	3	B	0	1	AXX
20530	S27 W71	320	Y	3	B	1070	33	FKI
20533	S22 W66	315	(B)	3				
20541	S32 W69	318	(AP)	2	B	10	2	BXO
20530	S27 W85	320	Y	3	B	760	12	EKI
20533	S22 W80	315	B	3				
20541	S30 W75	310	(AP)	3	B	20	2	CSO

MCMATH REGION 15920 CMP DATE 3.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	3	28	15920	S15 E85	298	1200	2.0
79	3	29	15920				
79	3	30	15920				
79	3		15920				
79	3		15920				
79	3	31	15920				
79	3		15920				
79	4	1	15920				
79	4	2	15920				
79	4	3	15920	S17 E04	299	1600	2.5
79	4	4	15920				
79	4	5	15920	S17 W25	300	1800	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S15 E80				B	0	1	AXX
	S16 E68				B	10	2	CRO
20534	S17 E50	306	AP	2				
20535	S09 E69	287	AP	3				
20536	S15 E59	297	AP	1	B	10	2	BXO
20534	S17 E42	302	(B)	2	R	30	8	BXO
20535	S09 E58	286	(AP)	3				
20534	S18 E27	301	(BP)	3				
20534	S17 E14	301	(BP)	4				
20534	S17 E02	300	(B)	3	B	20	9	CSI
20534	S17 W11	300	(BP)	4	B	40	4	CRO
20534	S17 W26	302	(AP)	3	B	20	2	HSX

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MCMATH REGION 15920 (CONT) CMP DATE 3.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	6	15920	S17 W39	298	1400	2.5									
79	4	7	15920	S17 W49	298	1400	2.5									
79	4	9	15920	S17 W77	298	900	2.0									
79	4	10	15920	S17 W90	300	300	1.0									

MCMATH REGION 15923 CMP DATE 4.7 RETURN OF REGIONS 15863 AND 15870 ROTATIONS 2 AND 4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	28	15923	N20 E72	311	1000	1.0									
79	4	3	15923	N19 E15	288	4000	2.5	20544	N13 E11	291	(AP)	3				
79	4	5	15923	N20 W12	287	4000	2.0									
79	4	6	15923	N20 W26	285	3500	2.0									
79	4	7	15923	N20 W36	285	3500	2.5									
79	4	9	15923	N20 W64	285	2700	1.5									
79	4	10	15923	N24 W70	280	1300	1.5									
79	4	11	15923	N24 W80	278	700	1.0									

MCMATH REGION 15939 CMP DATE 5.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	10	15939	N17 W71	281	400	3.0		N16 W78				M	50	2	BXO
79	4	11	15939	N17 W84	282	500	3.0									

MCMATH REGION 15924 CMP DATE 5.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	1	15924					20535	S09 E45	283	(AP)	3				
79	4	2	15924					20535	S08 E33	282	(AP)	3				
79	4	3	15924	S10 E24	279	900	2.5	20535	S08 E19	283	(AP)	3	B	10	1	HSX
79	4	4	15924					20535	S08 E06	283	(AP)	4	B	10	1	AXX
79	4	5	15924	S10 W05	280	900	2.0	20535	S08 W07	283	(AP)	3	B	30	4	CSO
79	4	6	15924	S10 W16	275	700	2.0	20535	S10 W20	283	(AP)	2				
79	4		15924					20549	S13 W07	270	(AP)	3				
79	4	7	15924	S11 W26	275	1000	2.5	20549	S12 W22	271	(B)	3	B	60	7	DSO
79	4	8	15924					20549	S12 W36	271	(B)	4	B	80	14	DSO
79	4	9	15924	S12 W53	274	1700	3.0	20549	S12 W50	273	(B)	2	B	20	7	BXO
79	4	10	15924	S12 W65	275	2000	2.5	20549	S12 W62	272	(B)	3	M	50	4	DRO
79	4	11	15924	S12 W77	275	1400	2.5	20549	S12 W77	273	AP	2	M	80	1	HRX

MCMATH REGION 15925 CMP DATE 7.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	3	15925	S30 E49	254	200	1.5									
79	4	5	15925	S29 E20	255	200	1.0									

MCMATH REGION 15927 CMP DATE 7.2 RETURN OF REMNANTS OF REGION 15884 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	3	15927	N12 E49	254	100	1.5									
79	4	5	15927	N13 E20	255	200	1.0									

MCMATH REGION 15926 CMP DATE 7.7 RETURN OF REGION 15865 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	3	15926	S16 E55	248	1100	1.5									
79	4	5	15926	S17 E29	246	1000	1.5									
79	4	6	15926	S16 E11	248	800	1.5									
79	4	7	15926	S16 E01	248	800	1.5									
79	4	9	15926	S16 W27	248	900	1.5									

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MCMATH REGION 15926 (CONT) CMP DATE 7.7 RETURN OF REGION 15865 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	10	15926	S15 W38	248	900	1.0									
79	4	11	15926	S15 W50.	248	500	1.0									
79	4	12	15926	S17 W65	248	300	1.5									

MCMATH REGION 15940 CMP DATE 8.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	10	15940	S26 W28	238	400	2.5	20552	S27 W27	237	(B)	2	H	30	3	CRO
79	4	11	15940	S26 W40	238	700	3.0	20552	S26 W46	242	(AP)	3	H	50	4	DRO
79	4	12	15940	S25 W56	239	700	2.5	20552	S26 W57	240	(B)	2	B	30	6	BXI
79	4	13	15940					20552	S26 W69	239	(B)	3	B	20	3	BXO
79	4	14	15940	S24 W82	239	700	2.5	20552	S26 W79	236	AP	2	B	10	1	AXX

MCMATH REGION 15928 CMP DATE 9.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	3	15928	N34 E88	215	200	1.5									
79	4	5	15928	N35 E53	222	100	2.5									
79	4	6	15928	N35 E39	220	100	1.0									

MCMATH REGION 15944 CMP DATE 10.8

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	11	15944	N32 W10	208	100	1.5									

MCMATH REGION 15931 CMP DATE 11.0 RETURN OF REMNANTS OF REGION 15873 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	5	15931	N27 E65	210	300	1.0									
79	4	6	15931	N27 E55	204	300	1.5									
79	4	7	15931	N27 E45	204	200	2.5		N24 E42				B	10	2	AXX

MCMATH REGION 15929 CMP DATE 11.1 RETURN OF REGION 15885 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	4	15929					20546	S26 E81	208	(X)	3				
79	4	5	15929	S27 E72	203	1800	2.5	20546	S26 E70	206	(AP)	3	B	80	1	HSX
79	4	6	15929	S28 E57	202	1700	2.5	20546	S27 E58	205	(AP)	3	B	50	1	HSX
79	4	7	15929	S28 E47	202	1700	2.5	20546	S27 E45	204	(Y)	3	B	120	12	DAO
79	4	8	15929					20546	S27 E33	202	(AP)	3	B	70	8	DSO
79	4	9	15929	S27 E28	201	1700	2.5	20546	S26 E20	203	(AP)	3	B	40	7	CRI
79	4	10	15929	S28 E07	203	1500	2.0	20546	S27 E08	202	(AP)	2	H	10	3	BXO
79	4	11	15929	S28 W05	203	1400	2.0									
79	4	12	15929	S29 W19	202	1200	2.0									
79	4	14	15929	S29 W45	202	1200	2.5									
79	4	16	15929	S29 W70	199	900	1.0									
79	4	17	15929	S28 W81	199	400	1.0									

MCMATH REGION 15934 CMP DATE 11.7 RETURN OF PART OF REGION 15877 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	6	15934	N10 E80	179	700	2.0									
79	4	7	15934	N12 E64	185	1400	2.0									
79	4	9	15934	N10 E27	194	600	1.5									
79	4	10	15934	N11 E15	195	900	1.5									
79	4	11	15934	N11 E02	196	600	1.5									
79	4	12	15934	N12 W12	195	800	1.5									
79	4	14	15934	N12 W39	196	800	1.5									
79	4	16	15934	N13 W66	195	400	1.0									

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MCMATH REGION 15935 CMP DATE 12.0

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	9	15935	N34 E30	191	300	3.0
79	4	10	15935	N34 E18	192	400	2.5
79	4	11	15935	N34 E06	192	500	2.0
79	4	12	15935	N33 W07	190	400	2.0
79	4	14	15935	N34 W31	188	500	1.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N34 E27				B	20	4	BXO
	N34 E14				H	10	1	AXX

MCMATH REGION 15930 CMP DATE 12.3 RETURN OF REGION 15876 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	5	15930	S24 E88	187	500	2.0
79	4	6	15930	S24 E70	189	900	2.0
79	4	7	15930	S24 E61	188	1000	2.5
79	4	9	15930	S25 E33	188	1100	2.5
79	4	10	15930	S25 E22	188	800	2.0
79	4	11	15930	S26 E10	188	600	2.0
79	4	12	15930	S26 W03	186	600	1.5
79	4	14	15930	S26 W30	187	600	1.5
79	4	16	15930	S26 W56	185	500	1.0
79	4	17	15930	S26 W66	184	600	1.5
79	4	18	15930	S26 W79	184	300	1.0
79	4	19	15930	S26 W90	182	200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15933 CMP DATE 13.2 RETURN OF PART OF REGION 15877 ROTATIONS 4 AND 5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	6	15933	N22 E85	174	2700	3.5
79	4	7	15933	N24 E77	172	3800	3.5
79	4	8	15933				
79	4	9	15933	N23 E48	173	4000	4.0
79	4	10	15933	N22 E37	173	4900	3.5
79	4	11	15933	N21 E22	176	5100	3.0
79	4	12	15933	N21 E08	175	5500	3.0
79	4	13	15933				
79	4	14	15933	N22 W20	177	5500	3.5
79	4	15	15933				
79	4	16	15933	N23 W48	177	4400	2.5
79	4	17	15933	N24 W58	176	4100	2.5
79	4	18	15933	N24 W70	175	3200	2.5
79	4	19	15933	N24 W82	174	2700	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20550	N20 E80	183	(X)	3	B	70	2	DSO
20550	N19 E67	182	(AP)	3	B	130	4	DSO
20550	N19 E52	183	(BP)	4	B	140	11	ESI
20550	N19 E42	181	(BP)	4	B	110	7	DSO
20550	N19 E27	183	(AP)	3	H	60	11	DAO
20550	N19 E12	184	(AP)	3				
20550	N19 E00	183	(BP)	3	B	80	19	DSI
20550	N19 W12	182	(B)	4	B	110	8	DAO
20550	N20 W25	182	(BY)	3	B	40	7	CRI
20550	N19 W39	183	(BP)	3	B	10	4	BXI
20550	N20 W53	184	(AP)	3	B	30	4	CSO
	N21 W64				B	10	1	BXO

MCMATH REGION 15953 CMP DATE 13.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	15	15953				
79	4	16	15953	N35 W44	173	600	2.5
79	4	17	15953	N35 W54	172	900	2.5
79	4	18	15953	N35 W67	172	800	2.0
79	4	19	15953	N35 W80	172	600	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20559	N34 W27	171	(AF)	2				
20559	N34 W42	173	(B)	4	B	110	8	DSO
	N34 W54				B	130	3	DSO
20559	N35 W80	184	B	2	B	80	2	DSO

MCMATH REGION 15936 CMP DATE 14.2 RETURN OF REGION 15907 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	9	15936	N14 E62	159	1300	2.0
79	4	10	15936	N14 E50	160	1800	2.0
79	4	11	15936	N14 E37	161	1700	2.0
79	4	12	15936	N13 E24	159	1800	2.0
79	4	14	15936	N14 W05	162	2000	2.5
79	4	16	15936	N15 W32	161	2000	2.0
79	4	17	15936	N15 W43	161	2000	2.0
79	4	18	15936	N14 W55	160	2600	2.0
79	4	19	15936	N14 W69	161	1400	1.5
79	4	20	15936	N14 W82	161	700	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

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MCMATH REGION 15941 CMP DATE 15.5 RETURN OF REGION 15880 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	9	15941	N40 E78	143	200	1.0									
79	4	10	15941	N40 E63	147	300	1.5									
79	4	11	15941	N40 E50	148	300	1.5									
79	4	12	15941	N40 E37	146	300	1.5									
79	4	14	15941	N40 E13	144	400	1.5									

MCMATH REGION 15937 CMP DATE 15.8 RETURN OF PART OF REGION 15887 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	9	15937	N05 E80	141	1900	2.5	20551	N03 E80	143	(AP)	4	B	590	2	DHO
79	4	10	15937	N05 E71	139	4400	3.5	20551	N04 E67	143	(AP)	4	H	620	10	EKC
79	4	11	15937	N05 E59	139	4000	3.0	20551	N03 E51	145	(Y)	4				
79	4	12	15937	N05 E43	140	3500	3.0	20551	N04 E40	143	(Y)	4	B	920	20	EKC
79	4	13	15937					20551	N04 E26	144	(D)	5	B	640	10	EKC
79	4	14	15937	N04 E14	143	3000	3.0	20551	N03 E12	145	(BY)	5	B	580	13	EKO
79	4	15	15937					20551	N03 E00	144	(Y)	5	B	590	9	DHI
79	4	16	15937	N04 W13	142	3000	2.5	20551	N04 W13	144	(AP)	5	B	620	12	DHI
79	4	17	15937	N04 W24	142	2700	3.0		N04 W26				B	600	12	DHC
79	4	18	15937	N04 W37	142	3200	3.0	20551	N04 W40	144	(AP)	5	B	550	9	DHC
79	4	19	15937	N04 W50	142	3300	3.5	20551	N04 W55	146	(BP)	5	B	550	7	DKC
79	4	20	15937	N04 W64	143	3500	3.0	20551	N04 W68	146	(AP)	5	B	520	1	HHX
79	4	21	15937	N04 W80	145	1500	2.5	20551	N05 W85	150	AP	5	B	420	2	HHX

MCMATH REGION 15938 CMP DATE 16.0 RETURN OF REGION 15886 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	9	15938	S15 E82	139	600	1.5									
79	4	10	15938	S15 E73	137	1600	1.5									
79	4	11	15938	S15 E61	137	1900	1.5									
79	4	12	15938	S15 E46	137	1400	2.0									
79	4	14	15938	S16 E18	139	1300	2.0									
79	4	16	15938	S16 W10	139	900	2.0									
79	4	17	15938	S16 W20	138	900	2.0									
79	4	18	15938	S16 W33	138	900	2.0	20563	S14 W25	129	(AP)	2				
79	4	19	15938	S16 W46	138	800	2.0	20563	S15 W38	129	(AP)	2				
79	4	20	15938	S16 W60	139	800	2.0	20563	S14 W51	129	(B)	2	B	30	4	CSO
79	4	21	15938	S16 W75	140	400	1.5	20563	S14 W66	131	(AP)	2	B	30	3	CRO
79	4	22	15938	S18 W85	135	200	1.0									

MCMATH REGION 15943 CMP DATE 16.5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	10	15943	N16 E85	125	2000	3.0									
79	4	11	15943	N16 E73	128	2500	3.0									
79	4	12	15943	N15 E53	130	2600	3.0									
79	4	13	15943					20557	N16 E37	133	(B)	3	B	0	1	AXX
79	4	14	15943	N14 E25	132	2800	3.0	20557	N16 E22	135	(B)	2	B	10	5	BXI
79	4	15	15943					20557	N16 E08	136	(B)	3	B	10	5	BXO
79	4	16	15943	N15 W03	132	3000	3.0									
79	4	17	15943	N13 W12	130	2500	3.0	20561	N18 E00	131	(AF)	3	B	10	8	BXI
79	4	18	15943	N15 W25	130	2400	2.5									
79	4	19	15943	N16 W38	130	2400	3.5									
79	4	20	15943	N17 W52	131	2500	3.0									
79	4	21	15943	N17 W70	135	1600	3.0		N17 W72				B	10	2	BXO
79	4	22	15943	N17 W83	133	1000	2.0									

MCMATH REGION 15949 CMP DATE 16.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	12	15949	S24 E58	125	500	2.5	20556	S23 E56	127	(B)	3	B	40	4	CRO
79	4	13	15949					20556	S24 E43	127	(B)	4	B	130	8	DAO
79	4	14	15949	S23 E31	126	1500	3.0	20556	S24 E30	127	(B)	4	B	110	9	CSO
79	4	15	15949					20556	S24 E15	129	(BP)	4	B	110	11	CSO
79	4	16	15949	S24 E02	127	1700	3.0	20556	S23 E03	128	(BP)	4	B	120	30	DAI
79	4	17	15949	S24 W09	127	1800	3.0		S22 W10				B	170	24	DAI
79	4	18	15949	S24 W21	126	1800	3.0	20556	S23 W24	128	(BP)	3	B	130	17	DAI

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MCMATH REGION 15949 (CONT) CMP DATE 16.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	19	15949	S24 W34	126	1900	3.0
79	4	20	15949	S24 W47	126	2200	3.0
79	4	21	15949	S24 W61	126	1800	3.0
79	4	22	15949	S24 W74	124	1600	3.0
79	4	23	15949	S24 W86	124	500	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20556	S25 W38	129	(BP)	4	B	110	7	DAO
20556	S25 W54	132	(AP)	3	B	120	7	DSO
20556	S25 W67	132	(AP)	3	B	100	3	CSO
20556	S25 W80	130	(AP)	2	B	20	2	BXO

MCMATH REGION 15942 CMP DATE 17.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	10	15942	N29 E87	123	400	3.0
79	4	11	15942	N29 E76	122	1000	3.5
79	4	12	15942	N28 E61	122	1200	3.5
79	4	13	15942				
79	4	14	15942	N29 E34	123	2000	4.0
79	4	15	15942				
79	4	16	15942	N29 E07	122	2300	3.5
79	4	17	15942	N29 W06	124	2400	3.5
79	4	18	15942	N29 W19	124	2500	3.5
79	4	19	15942	N30 W31	123	2700	3.5
79	4	20	15942	N30 W44	123	2900	3.5
79	4	21	15942	N30 W58	123	2500	3.5
79	4	22	15942	N30 W73	123	2500	3.0
79	4	23	15942	N30 W85	123	2100	2.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N29 E85				M	110	2	BXO
20555	N28 E70	126	B	2	M	90	4	DRO
20555	N29 E58	125	(B)	3	B	40	2	DSO
20555	N29 E45	125	(B)	3	B	60	7	CSO
20555	N29 E33	124	(B)	3	B	30	10	BXI
20555	N29 E20	124	(B)	4	B	80	15	BXI
20555	N30 E08	123	(B)	4	B	240	42	EAI
	N29 W06				B	260	29	EAI
20555	N30 W19	123	(B)	4	B	260	30	ESI
20555	N29 W31	122	(B)	4	B	100	16	FAI
20555	N28 W49	127	(B)	4	B	130	9	EAI
20555	N28 W62	127	(B)	3	B	210	12	DAI
20555	N29 W79	129	(B)	2	B	250	7	EAO

MCMATH REGION 15947 CMP DATE 17.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	11	15947	S08 E83	115	200	1.0
79	4	12	15947	S09 E68	115	300	2.0
79	4	14	15947	S08 E38	119	400	2.5
79	4	16	15947	S09 E09	120	300	1.5
79	4	17	15947	S09 W02	120	300	1.0
79	4	18	15947	S09 W15	120	200	1.0
79	4	19	15947	S09 W28	120	200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15948 CMP DATE 17.4 RETURN OF PART OF REGION 15887 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	11	15948	N09 E80	118	1800	2.0
79	4	12	15948	N07 E68	115	1500	2.5
79	4	13	15948				
79	4		15948				
79	4	14	15948	N08 E40	117	1600	3.0
79	4		15948				
79	4	15	15948				
79	4		15948				
79	4	16	15948	N08 E08	121	1700	2.5
79	4		15948				
79	4	17	15948	N08 W04	122	1400	2.5
79	4	18	15948	N08 W17	122	1500	2.0
79	4	19	15948	N08 W30	122	1500	2.5
79	4	20	15948	N08 W43	122	1700	2.5
79	4	21	15948	N08 W55	120	1200	2.0
79	4	22	15948	N08 W69	119	400	1.5
79	4	23	15948	N08 W81	119	200	1.0

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20553	N07 E63	133	(AP)	3	M	60	3	DSO
20553	N08 E54	129	(AP)	3	B	60	1	HSX
20558	N14 E52	118	(AP)	2				
20553	N08 E40	130	(AP)	4	B	20	1	HSX
20553	N08 E27	130	(BP)	4	B	40	1	HKX
20558	N14 E37	120	(AP)	2	B	0	1	AXX
20560	N05 E23	121	(B)	2	B	0	2	BXO
20553	N08 E14	130	(AP)	4	B	60	2	HSX
20560	N05 E09	122	(B)	2	B	10	3	BXO
20553	N08 E01	130	(AP)	3	B	40	6	DSI
	N06 W04				B	30	2	BXO
20553	N08 W27	131	(AP)	2	B	30	2	CSO
20553	N08 W41	132	(AP)	3				
20553	N07 W55	133	(AP)	2				

MCMATH REGION 15950 CMP DATE 17.5 RETURN OF REGION 15890 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	4	11	15950	S16 E80	118	700	1.0
79	4	12	15950	S17 E67	116	600	1.5
79	4	14	15950	S16 E40	117	900	2.5
79	4	16	15950	S16 E10	119	700	2.0
79	4	17	15950	S16 W01	119	800	2.0
79	4	18	15950	S15 W15	120	900	2.0
79	4	19	15950	S15 W29	121	800	2.0
79	4	20	15950	S15 W42	121	700	2.5

SUNSPOT DATA

MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S13 W37				B	30	5	CSO

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MCMATH REGION 15950 (CONT) CMP DATE 17.5 RETURN OF REGION 15890 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	21	15950	S15 W61	126	700	2.5									
79	4	22	15950	S15 W74	124	800	2.5		S14 W74				B	10	1	AXX
79	4	23	15950	S16 W86	124	300	1.5									

MCMATH REGION 15952 CMP DATE 18.0

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	11	15952	N17 E85	113	600	2.0									
79	4	12	15952	N18 E70	113	900	2.5		N15 E65				B	10	1	AXX
79	4	14	15952	N18 E45	112	1000	2.5									
79	4	16	15952	N17 E16	113	800	2.0									
79	4	17	15952	N17 E06	112	800	2.0									
79	4	18	15952	N18 W07	112	800	2.0									
79	4	19	15952	N19 W20	112	800	2.0									
79	4	20	15952	N18 W33	112	900	1.5									
79	4	21	15952	N18 W46	113	800	1.5									
79	4	22	15952	N19 W62	112	700	1.5									
79	4	23	15952	N19 W74	112	700	1.0									

MCMATH REGION 15966 CMP DATE 18.6

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	22	15966	N18 W54	104	400	3.0	20566	N17 W54	104	(8)	3	B	50	6	CRO
79	4	23	15966	N18 W65	103	900	3.0	20566	N18 W67	104	(8)	2	B	30	2	CRO
79	4	24	15966	N18 W82	105	700	2.5									

MCMATH REGION 15957 CMP DATE 19.2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	18	15957	S29 E09	96	100	2.0									

MCMATH REGION 15951 CMP DATE 20.4 RETURN OF REGION 15895 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	14	15951	S31 E79	78	300	1.5									
79	4	16	15951	S30 E48	81	800	2.0									
79	4	17	15951	S30 E38	80	700	1.5									
79	4	18	15951	S30 E24	81	600	2.0									
79	4	19	15951	S30 E12	80	400	2.0									
79	4	20	15951	S30 W01	80	300	1.5									
79	4	21	15951	S30 W17	82	400	1.5									
79	4	22	15951	S30 W30	80	500	2.0									
79	4	23	15951	S30 W42	80	400	2.5									
79	4	24	15951	S30 W54	77	500	2.5									
79	4	25	15951	S30 W68	78	400	2.0									
79	4	26	15951	S30 W80	79	300	1.5									

MCMATH REGION 15960 CMP DATE 21.7

				CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	20	15960	N24 E14	65	400	1.5									
79	4	21	15960	N24 E01	64	300	1.5		N23 E04				B	0	1	AXX
79	4	22	15960	N24 W13	63	300	2.0		N22 W09				B	0	1	AXX
79	4	23	15960	N23 W23	61	300	2.5									
79	4	24	15960	N23 W38	61	300	2.0									

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MCMATH REGION 15954 CMP DATE 22.6 RETURN OF REGION 15899 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	16	15954	S33 E77	52	300	1.5									
79	4	17	15954	S33 E66	52	400	1.0									
79	4	18	15954	S33 E53	52	300	1.5									
79	4	19	15954	S33 E40	52	200	1.5									
79	4	20	15954	S33 E27	52	200	1.0									

MCMATH REGION 15955 CMP DATE 23.3 RETURN OF REGION 15904 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	16	15955	N05 E89	40	600	1.0	20562	N06 E90	41	(X)	3				
79	4	17	15955	N06 E78	40	400	1.5		N07 E71				B	30	1	HSX
79	4	18	15955	N07 E65	40	700	2.5	20562	N06 E58	46	(AP)	3	B	60	1	HSX
79	4	19	15955	N06 E51	41	600	2.5	20562	N07 E45	46	(AP)	4				
79	4	20	15955	N06 E37	42	700	2.0	20562	N06 E31	47	(AP)	4	B	70	2	HSX
79	4	21	15955	N06 E21	44	900	2.0	20562	N06 E17	48	(AP)	4	B	60	1	HSX
79	4	22	15955	N06 E08	42	900	2.0	20562	N06 E04	46	(AP)	4	B	60	1	HSX
79	4	23	15955	N07 W04	42	900	2.0	20562	N06 W10	47	(AP)	4	B	40	5	CSO
79	4	24	15955	N07 W18	41	800	2.0	20562	N05 W24	48	(AP)	4	B	20	1	HSX
79	4	25	15955	N07 W32	42	800	2.5	20562	N05 W37	48	(AP)	4	B	20	1	HSX
79	4	26	15955	N07 W45	44	600	1.5	20562	N05 W51	49	(AP)	3	B	40	1	HSX
79	4	27	15955	N07 W61	44	600	1.5	20562	N05 W65	50	(AP)	3	B	0	1	AXX

MCMATH REGION 15956 CMP DATE 23.4 RETURN OF REGION 15911 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	18	15956	S24 E65	40	200	1.5									
79	4	19	15956	S24 E52	40	100	1.5									
79	4	20	15956	S23 E39	40	100	1.0									
79	4	21	15956	S24 E23	42	300	1.0									
79	4	22	15956	S22 E10	40	300	1.0									
79	4	23	15956	S22 W02	40	300	1.0									
79	4	24	15956	S22 W17	40	300	1.5									
79	4	25	15956	S22 W30	40	200	1.5									
79	4	26	15956	S22 W42	41	100	1.0									
79	4	27	15956	S22 W58	41	100	1.0									
79	4	29	15956	S22 W80	41	100	1.0									

MCMATH REGION 15961 CMP DATE 24.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	19	15961	N13 E63	29	100	1.5									
79	4	20	15961	N13 E48	31	100	1.0									
79	4	21	15961	N13 E33	32	200	1.5									
79	4	22	15961	N13 E19	31	200	1.5									
79	4	23	15961	N13 E06	32	300	1.0									

MCMATH REGION 15958 CMP DATE 24.8 RETURN OF REGION 15906 ROTATION 4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	18	15958	S20 E85	20	400	1.0									
79	4	19	15958	S19 E70	22	400	1.0									
79	4	20	15958	S20 E56	23	800	1.0									
79	4	21	15958	S20 E40	25	1200	1.0									
79	4	22	15958	S20 E27	23	1600	1.5									
79	4	23	15958	S20 E16	22	1400	2.0	20569	S19 E19	18	AP	1				
79	4	24	15958	S19 E02	21	1200	2.0									
79	4	25	15958	S20 W13	23	1200	2.0									
79	4	26	15958	S20 W25	24	800	1.5	20572	S18 W25	23	(AP)	2	B	0	1	AXX
79	4	27	15958	S20 W41	24	800	1.5									
79	4	29	15958	S20 W63	24	800	1.5									
79	4	30	15958	S19 W78	24	300	1.0									

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MCMATH REGION 15962 CMP DATE 25.0 RETURN OF REGION 15908 ROTATION 6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	19	15962	N14 E78	14	600	1.5									
79	4	20	15962	N13 E63	16	500	1.0									
79	4	21	15962	N15 E45	20	500	1.0									
79	4	22	15962	N15 E31	19	400	1.0									
79	4	23	15962	N15 E19	19	500	1.0	20568	N17 E17	20	(AP)	2				
79	4	24	15962	N15 E04	19	300	1.0									

MCMATH REGION 15959 CMP DATE 25.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	19	15959	S08 E80	12	200	3.5									
79	4	20	15959	S09 E66	13	500	2.5									
79	4	21	15959	S10 E51	14	500	2.0									
79	4	22	15959	S10 E37	13	500	1.5									
79	4	23	15959	S10 E24	14	400	1.5									
79	4	24	15959	S11 E10	13	400	1.5									
79	4	25	15959	S11 W04	14	200	1.5									

MCMATH REGION 15963 CMP DATE 25.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	21	15963	N22 E57	8	600	2.0	20565	N23 E58	7	(B)	2	B	40	2	CRO
79	4	22	15963	N22 E44	6	900	3.0	20565	N22 E44	6	(B)	3	B	60	9	CRI
79	4	23	15963	N22 E31	7	1400	3.0	20565	N22 E32	5	(D)	4	B	70	12	DAO
79	4	24	15963	N22 E17	6	1500	2.5	20565	N22 E17	7	(B)	3	B	30	16	CAI
79	4	25	15963	N22 E03	7	1500	3.0	20565	N22 E06	5	(B)	3	B	40	5	DSO
79	4	26	15963	N22 W09	8	1500	3.0	20565	N21 W08	6	(B)	3	B	90	14	ESI
79	4	27	15963	N22 W24	7	1500	2.0	20565	N21 W22	7	(B)	2	B	10	3	BXO
79	4	29	15963	N22 W49	10	1300	3.0									
79	4	30	15963	N22 W61	7	900	2.5									
79	5	01	15963	N23 W73		1100	2.5									
79	5	02	15963	N23 W87		500	1.0									

MCMATH REGION 15979 CMP DATE 26.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	28	15979					20578	S39 W36	8	(B)	3	B	10	2	AXX
79	4	29	15979	S39 W4-	4	200	2.5									
79	4	30	15979	S39 W59	5	400	1.5	20578	S38 W48	7	(AP)	3	B	10	2	BXO
79	5	01	15979	S39 W70		200	1.0									

MCMATH REGION 15983 CMP DATE 26.7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	5	01	15983	S30 W62		100	1.0									

MCMATH REGION 15964 CMP DATE 27.0 RETURN OF REMNANTS OF REGION 15916 ROTATION 7

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	4	21	15964	S21 E69	357	400	1.0									
79	4	22	15964	S22 E56	355	400	1.5									
79	4	23	15964	S21 E43	356	400	1.0									
79	4	24	15964	S20 E29	355	400	1.0									
79	4	25	15964	S21 E16	355	400	1.0									
79	4	26	15964	S22 E05	355	200	1.0									
79	4	27	15964	S22 W11	354	100	1.0									
79	4	29	15964	S20 W33	354	300	1.0									
79	4	30	15964	S21 W49	355	100	1.0									
79	5	01	15964	S21 W60		100	1.0									

REGIONS OF SOLAR ACTIVITY

APRIL 1979

MCMATH REGION 15980 CMP DATE 27.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	4	29	15980	S16	W30	351	100	2.0
79	4	30	15980	S16	W46	352	200	1.5
79	5	01	15980	S16	W57		200	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15981 CMP DATE 27.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	4	29	15981	N27	W23	344	300	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15972 CMP DATE 28.6 RETURN OF REGION 15917 ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	4	22	15972	S24	E78	333	800	2.0
79	4	23	15972	S24	E65	334	900	2.0
79	4	24	15972	S23	E50	334	800	2.0
79	4	25	15972	S23	E37	334	700	2.0
79	4	26	15972	S24	E25	335	600	1.5
79	4	27	15972	S24	E10	333	600	1.5
79	4	28	15972					
79	4	29	15972	S23	W14	335	1000	2.0
79	4	30	15972	S24	W27	333	900	2.0
79	5	01	15972	S24	W38		1000	2.0
79	5	02	15972	S24	W54		1000	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S25	E78				B	10	1	AXX
20573	S25	E26	333	(AF)	3	B	10	1	AXX
20573	S24	E11	334	(BF)	3	B	10	8	BXO
20573	S24	W02	334	(BF)	3	B	30	10	CAI
20573	S26	W13	332	(AF)	3	B	20	8	HRX
	S25	W28				B	160	21	D
20580	S20	W60		(B)	2	B	110	14	C

MCMATH REGION 15967 CMP DATE 28.8

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	4	22	15967	N19	E85	326	2000	3.5
79	4	23	15967	N18	E67	332	4000	3.5
79	4	24	15967	N18	E54	330	3200	3.0
79	4	25	15967	N18	E41	330	4500	3.0
79	4	26	15967	N17	E28	332	4500	3.0
79	4	27	15967	N17	E13	330	4500	3.5
79	4	28	15967					
79	4	29	15967	N17	W10	331	4500	3.5
79	4	30	15967	N17	W26	332	4500	3.0
79	5	01	15967	N17	W37		4400	3.0
79	5	02	15967	N17	W50		4400	3.5
79	5	03	15967					
79	5	04	15967					
79	5	05	15967	N17	W88		800	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20567	N18	E78	333	(AP)	2	B	560	1	HHX
20567	N19	E68	330	(B)	3	B	550	9	ESO
20567	N18	E54	331	(B)	5	B	800	13	EHO
20567	N18	E42	330	(BY)	5	B	970	22	EKO
20567	N20	E22	337	(BY)	5	B	880	29	FKI
20567	N18	E13	332	(BY)	5	B	700	37	FKI
20567	N19	E01	331	(D)	5	B	780	39	FKI
20567	N19	W12	331	(BP)	5	B	590	45	EHI
20567	N18	W23	330	(BY)	5	R	430	16	FKO
20567	N17	W37		(BP)	4				
20567	N18	W54		(D)	5				
20567	N18	W66		(AP)	4				
20567	N18	W80		AP	4				

MCMATH REGION 15968 CMP DATE 30.3 RETURN OF REGION 15918 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	4	23	15968	S26	E80	319	4500	3.5
79	4	24	15968	S26	E70	314	6100	3.0
79	4	25	15968	S26	E55	316	6500	3.0
79	4	26	15968	S26	E47	313	6700	3.0
79	4		15968					
79	4	27	15968	S27	E33	310	5800	3.0
79	4		15968					
79	4	28	15968					
79	4		15968					
79	4	29	15968	S26	E10	311	5500	3.0
79	4	30	15968	S25	W06	312	4800	2.5
79	5	01	15968	S25	W16		4600	2.5
79	5	02	15968	S25	W30		4600	2.5
79	5	03	15968					
79	5	04	15968					
79	5	05	15968	S26	W68		4900	2.0
79	5	06	15968	S27	W78		3300	2.0
79	5	07	15968	S27	W88		1800	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20570	S23	E80	318	AP	3	B	390	5	DSO
20570	S24	E65	320	(AP)	4	B	340	10	DAO
20570	S24	E52	320	(AP)	4	B	420	14	DAI
20570	S24	E38	321	(AP)	5	B	210	18	DAI
20574	S31	E51	308	(AP)	3	B	10	2	BXO
20570	S25	E27	318	(AP)	4	B	230	10	DSO
20574	S30	E37	308	(AP)	3	B	0	1	AXX
20570	S25	E14	318	(AP)	4	B	200	9	DAI
20574	S30	E24	308	(AP)	2	B	0	2	AXX
20570	S25	E02	317	(AP)	4	B	150	16	DAI
20570	S26	W11	318	(AP)	4	R	140	21	CAI
20570	S25	W22		(AP)	3				
20570	S25	W36		(BP)	3				
20570	S26	W51		(AP)	3				
20570	S26	W65		(AP)	3				
20570	S25	W79		(AP)	2				

REGIONS OF SOLAR ACTIVITY

APRIL 1979

MCMATH REGION 15985 CMP DATE 30.3

				CALCIUM PLAGE DATA					SUNSPOT DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	5	02	15985	S09 W29		100	1.5								

MCMATH REGION 15993 CMP DATE 30.4

				CALCIUM PLAGE DATA					SUNSPOT DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	5	06	15993	N39 W80		100	2.5								
79	5	07	15993	N40 W89		300	1.0								

MCMATH REGION 15970 CMP DATE 30.4 RETURN OF REMNANTS OF REGION 159 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	4	24	15970	N39 E80	304	200	1.5								
79	4	25	15970	N39 E66	305	200	1.5								
79	4	26	15970	N39 E54	306	300	1.0								
79	4	27	15970	N39 E38	305	300	1.0								
79	4	29	15970	N39 E12	309	300	1.5								
79	4	30	15970	N40 W01	307	300	1.0								

MCMATH REGION 15975 CMP DATE 30.8 RETURN OF R[illegible]ON 15920 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
79	4	24	15975	S18 E82	302	700	2.5								
79	4	25	15975	S18 E[illegible]	304	600	2.5								
79	4	26	15975	S2[illegible]	305	700	2.0								
79	4	27	15975	S2[illegible]40	303	600	2.0								
79	4	29	15975	S19 E16	[illegible]15	400	1.5								
79	4	30	15975	S18 E01	[illegible]	400	1.5								
79	5	01	15975	S18 W10		400	1.5								
79	5	02	15975	S18 W23		300	1.5								
79	5	05	15975	S18 W62		200	1.0								

Note: No calcium spectroheliograms were secure[illegible] at the McMath-Hulbert Observatory on April 1, 2, 4, 8, 13, 15, and 28, 1979.
No sunspot observations were made at Mt [illegible]ilson on April 17, 1979.

DAILY CALCIUM PLAGE INDEX

APRIL 1979

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
79	4	1	*	79	4	11	34.7	79	4	21	16.6
79	4	2	*	79	4	12	42.8	79	4	22	13.9
79	4	3	53.1	79	4	13	*	79	4	23	19.6
79	4	4	*	79	4	14	61.5	79	4	24	21.4
79	4	5	33.1	79	4	15	*	79	4	25	31.6
79	4	6	25.7	79	4	16	49.1	79	4	26	35.6
79	4	7	28.5	79	4	17	45.0	79	4	27	45.4
79	4	8	*	79	4	18	40.8	79	4	28	*
79	4	9	24.6	79	4	19	35.5	79	4	29	60.9
79	4	10	30.7	79	4	20	28.4	79	4	30	53.1

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1979

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TIME							KNOWN FLARE	McMATH REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	0752	0820D	0801	1-	5	1		1	3		1		0749	15918
01	1129	1200	1143	1-	5	1		5	3		1		1120	15918
01	1208	1223D	1223	1-	1				1		1		1208	15918
01	1245	1315	1255	1-	5			1	2		1		NF	
01	1326	1350	1336	1-	5			2	2		1		1335	15918
01	1422	1444	1426	1-	1			1					1426E	15918
01	1441	1503D	1503	1-	3				1		3		NF	
01	1540	1725	1620	1	5	2		3	2		3		1555E	15918
02	0012	0138	0030	1	1				1				0009	15918
02	1021	1035	1027	1	3			2	1		1		1021	15918
02	1220	1244D	1244	1-	5			4	1		1		1222	15918
02	1333	1430	1400	1-	3	1		4					1342	15918
02	1418E	1500	1418	1-	5	1		1	1		1		1407	15918
02	1628	1715	1638	1-	1					1			1624	15918
02	1830	1858	1834	1-	1					1			1828	15918
02	1943	2018	1952	1-	1					1			1940	15918
02	2004	2200	2010	1	1	1							2002	15918
02	2033	2055	2039	1-	1					1			2033	15918
03	0106	0415D	0214	2+	5	1			2		1		0109	15918
03	0415E	0639	0423	1+	3	1			1				0417E	15918
03	0700	0740	0710	1-	3				2		1		0701	15918
03	0824	0848	0832	1-	5	1		1	3		1		0825	15918
03	1155	1235	1212	1-	5	3	1	6	4		3		1154	15918
03	1409	1420	1414	1-	3			3	1				1404	15918
03	1641	1731	1650	1-	1					1			1637	15918
04	0711	0732	0722	1	5			1	2		1		0713E	15918
04	1320	1430	1352	1-	1				1		1		1320	15918
04	2052	2123	2105	1-	3				2		1		2058	15918
05	0357	0510	0406	1-	1				1				0359	15918
05	0524	0608	0544	1-	1				1				0523	15918
05	0806	0930	0817	1	5	3		2	3		2		NF	
05	1458	1633	1507	2	5	3		6	4		5		1459	15933
05	1721	1749	1732	1-	5				2	1	2		NF	
06	0906	1055	0914	1+	5	4		4	4		3		0900	15933
06	1410	1520	1435	1-	1				1		1		1405	15918
06	1817	1913	1824	1-	1					1			1818	15918
07	0950	1008	0953	1	1		1						*	
07	1700	1805	1730	1-	1				1		1		1653	15918
08	1008	1038	1020	1-	3			1	2		1		*	
08	1236	1305	1248	1-	3				2		1		1237	15933
08	1512	1633	1528	1-	5	1		1	2		2		1508	15918
08	1822	1858	1828	1-	1				1				1822	15933
09	1045	1104D	1104	1-	3				1		2		1042	15937
09	1142	1210	1147	1-	3	1			1				1142	15937
09	1216	1320	1225	3-	5	2	1	7	4		6		1214	15939
09	1352	1420	1401	1-	5			3	3		5		NF	
09	1516	1606	1529	1-	5				1		3		1518	15933
09	2222	2304	2233	1-	5				2	1	1		*	
10	0459	0626D	0508	2	3	1			1				0458	15937
10	0626E	0739	0633	1-	3				1		1		0632E	15924
10	1728	1816	1746	1-	5	1			1		3		1720	15937
10	1845	1925	1852	1-	5	1			1		3		1837	15924
10	2050	2125	2100	1-	1				1				2052E	15938
10	2247	2320	2256	1-	1				1				2247	15942
11	0835	0926	0902	2-	5	1		1	2				0842E	15948
11	1135	1210	1143	1-	5	2		1	2		3		1131E	15940
11	1338	1520	1346	2	5	3		6			4		1327	15940
11	1500	1533	1504	1-	3			2					1500	15933
11	2134	2244	2149	1-	5				2	1	3		2135	15948
12	0416	0512	0426	1-	1				1				*	
12	1557	1608	1602	1-	3				2		1		1547	15943
12	1644	1742	1709	1-	1				1		1		1649	15949
13	0239	0312	0244	1-	1				1				0242E	15937
13	0609	0650	0616	1-	3			1	1				0612E	15937
13	0901	0921	0912	1-	3				1		1		0900	15933
13	1049	1103	1054	1-	5	2		1	3		3		1050E	15936
13	1224	1235D	1235	1-	1				1		1		1228	15933
13	2340	0108	2400	1+	5	1			2				2340	15936
14	0121	0236	0131	1+	5	1		1	2				NF	
14	0312	0522	0343	1+	1				1				0322E	15942
14	0720	0825	0738	1	5	2		3	3		1		0720	15942
14	1023	1038	1029	1-	1			1	1				1017	15937
14	1106	1115	1109	1-	1			1					1106	15937
14	1158	1305	1230	1-	1				1		1		1202	15942
14	1303	1308	1318	1-	1		1						1307	15933
14	1413	1546	1414	1-	1			1					1416	15948
14	1440	1605	1448	1+	5	4		6	4	1	6		1441	15937

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1979

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
15	0525	0615		1-	1			1					*	
15	0736	0750	0743	1	5	1			2		1		0730	15943
15	0840	0855	0849	1	1				1				*	
15	1035	1044	1039	1-	3				2		1		1030	15937
15	2009	2100	2013	1-	5	2			2	1	2		2007	15937
15	2242	2400	2307	1-	1				1				2241	15943
16	0510	0648	0518	2	5	2		1	2				*	
16	1134	1139D	1139	1-	5	1			3		2		1134	15937
16	1157	1235	1203	1-	5	1		1	3		2		1155	15937
16	1645	1746	1705	1-	5	1		1	3		3		1649	15937
16	2345	0018	2351	1-	1				1				2345	15943
17	1328	1350	1337	1-	3			2					*	
17	1835	1918	1843	1-	1					1			1835	15943
17	2057	2200	2120	1-	1				1				2051E	15943
19	0945	1007		1-	1		1						*	
19	1048	1111	1057	1-	1			1					*	
21	1518	1605	1530	1	5				1	1	4		NF	
22	1020	1043	1024	1-	1			1					*	
22	1208	1225	1218	1-	3				2		1		*	
22	1545	1644	1558	1-	5	1		5	3		6		NF	
22	1946	2025	1958	1-	1					1			1952	15950
23	1319	1332D	1332	1-	1				1		1		*	
23	2148	2224	2154	1-	5				2		2		*	
24	0208	0300	0228	1-	1				1				*	
24	1632	1645	1637	1-	5	1			3	1	3		1633	15971
24	1806	1848	1817	1-	1				1	1			1801	15968
25	0653	0728	0658	1-	3				3				0655E	15971
25	1520	1616	1532	1-	1					1			1529	15968
25	2138	2343	2200	1	5				2	1	3		2134	15968
26	0916	0950	0923	1-	3			1	2		1		0916	15967
26	1024	1040	1028	1-	5	1		1	2		1		1026E	15968
26	1532	1605	1540	1-	5			1	2	1	1		1524	15968
26	1810	1904	1815	1-	5				2	1	1		1810	15976
26	2004	2120	2016	1-	5	1			2	1			2001	15967
27	0140	0256	0206	1-	1				1				0145E	15968
27	0535	0950	0652	3	5	1		4	2				0523E	15963
27	0637	0720	0642	1	5	5	1	6	2		2		0643E	15967
27	1048	1130	1100	1-	1				1		1		*	
27	1457	1530	1503	1-	1						2		1457	15962
27	1632	1700	1635	2+	5	5	1	7	3	1	2		1628	15967
27	1937	2006	1944	1-	5	1			1		3		1932	15967
27	2043	2130	2052	1-	3				2	1			2040	15967
28	0145	0304	0200	1	1				1				0140	15967
28	0648	0721	0654	1-	3			2					*	
28	0751	0812U	0755	1-	1			1					0755	15973
28	1700	1727	1704	1-	1					1			1700	15967
29	0733	0908	0738	1+	5	3		3	2		2		0731	15974
29	1605	1717	1620	2	5	2		5	3		6		1603	15974
30	0024	0117	0036	1-	3				2				0025	15974
30	0518	0606	0532	1-	3				1		1		0522	15974
30	0614	0640	0616	1-	1						1		0613	15974
30	1617	1715	1642	1-	3				2	1	1		1616	15974
30	1748E	1827	1753	1-	1						1		1747	15974
30	2158	2237	2204	1-	1					1			2158	15976

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01-02	0000-2400 CL
02	0050-0148 TM
03	1000-1345 UM (16 kHz)
04	0546-2400 UM (10 and 13 kHz)
10	1000-1400 UM (16 kHz)
17	0730-1340 UM (16 kHz)
24	1010-1335 UM (16 kHz)
25	1100-1230 UM (10 and 13 kHz)
26	0613-0652 TM
27-29	0000-2400 TN
29	1516-2222 TM

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1979

STATIONS REPORTING FOR APRIL 1979

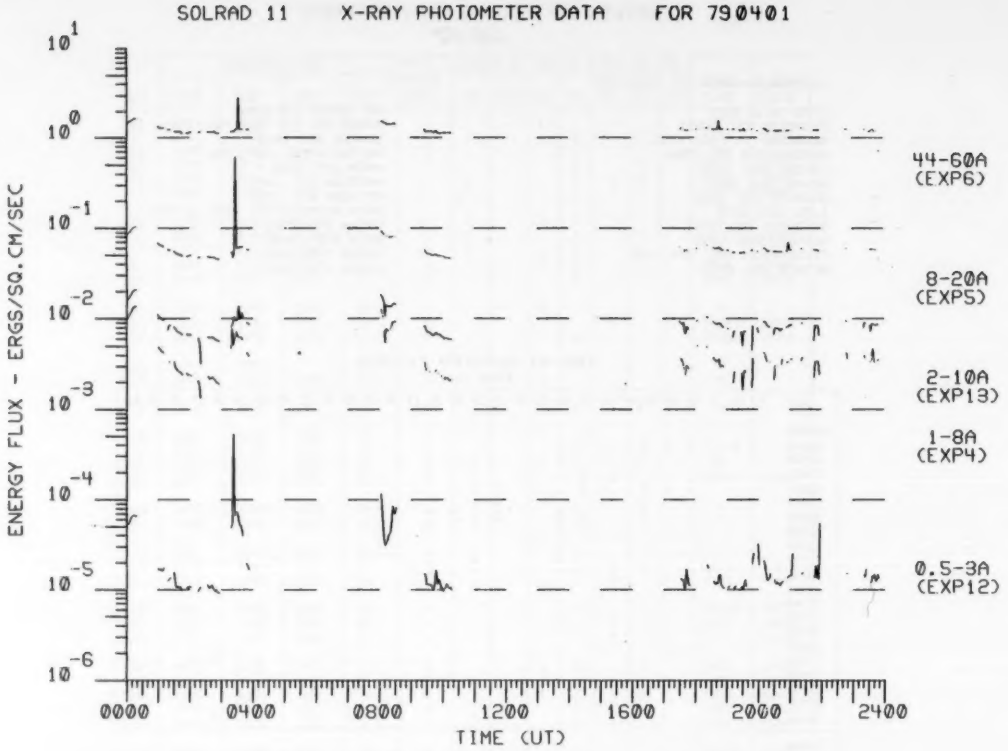
AAVSO (A21) (SES)
CHILWORTH (CL) (SGNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
JULIUSRUH (JH) (SWF)
KANDILLI (KD) (SEA)
KUHLUNGSBORN (KU) (SEA, SPA)
MC MATH (MC) (SWF)
NEW JERSEY (NJ) (SES)
PANSKA VES (PU) (SWF, SEA, SES)
PRESTON (LB) (SEA)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
SOMERTON (SO) (SWF)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)
ZILINA (ZL) (SEA)

SIDs BY McMATH REGION

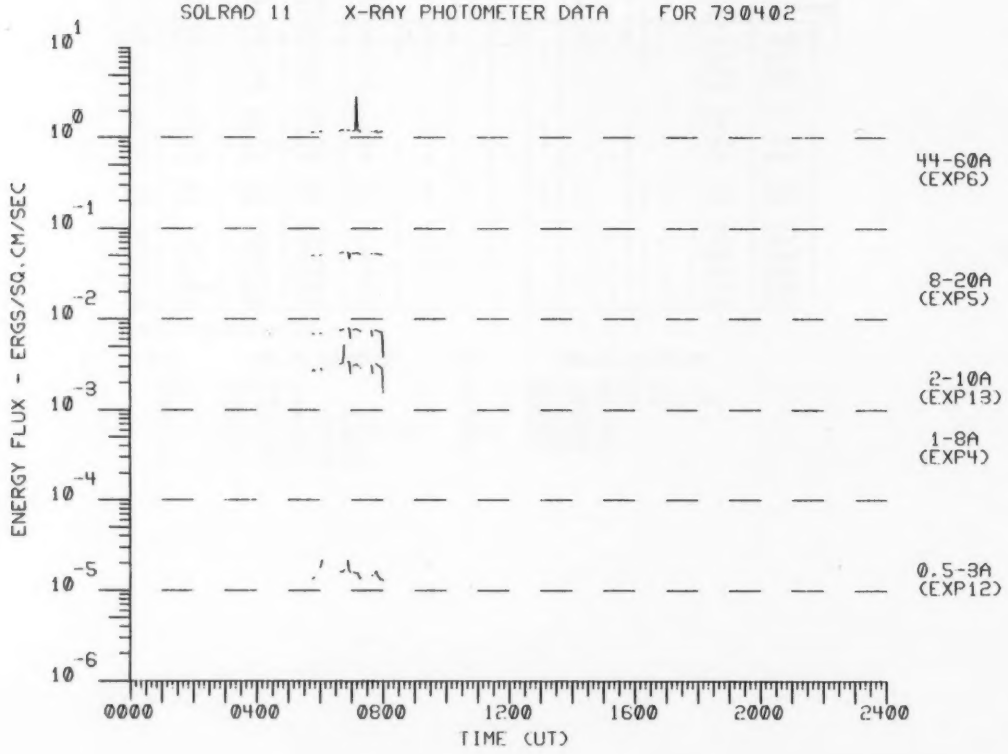
APRIL 1979

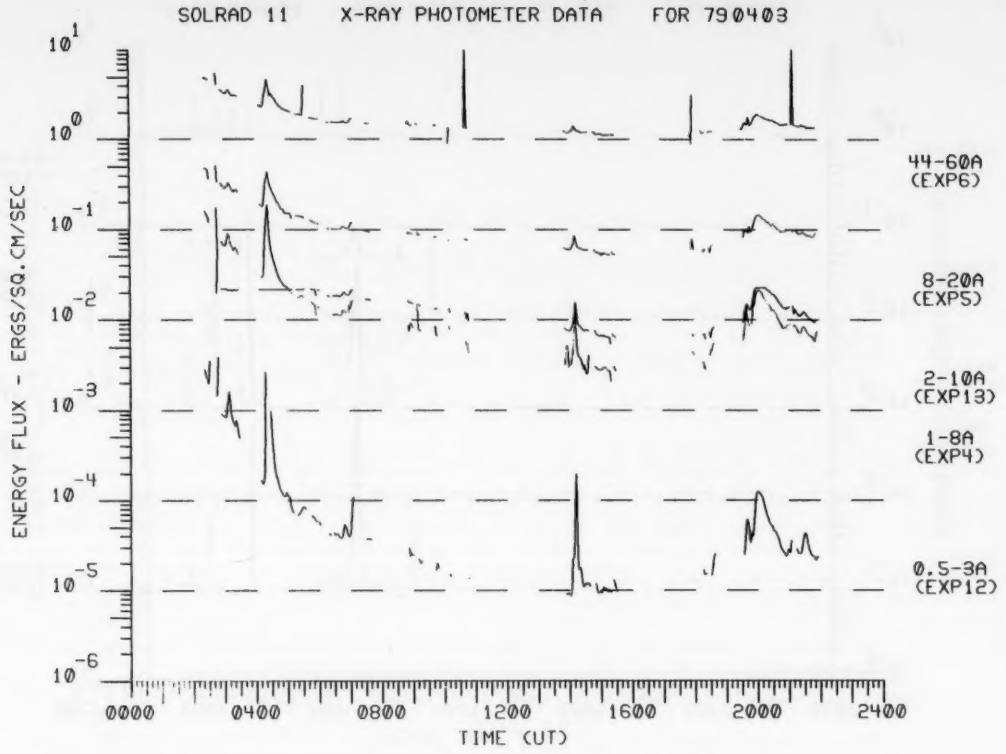
DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
REGION																														
15918	6	10	7	3	2	2	1	1																						
15924										2																				
15929									1																					
15933					1	1		2	1		1		2	1																
15936													2																	
15937									2	2			2	2	2	3														
15938										1																				
15940											2																			
15942										1				3																
15943												1			2	1	2													
15948											2			1																
15949												1																		
15950																						1								
15963																											1			
15967																										2	5	2		
15968																								1	2	2	1			
15971																								1	1					
15973																												1		
15974																													2	5
15976																										1				1
X-RAY																														
UNKNOWN	2				2				1					1							1	1							
NO FP							1	1	1			1			2	1	1		2			2	2	1			1	1		

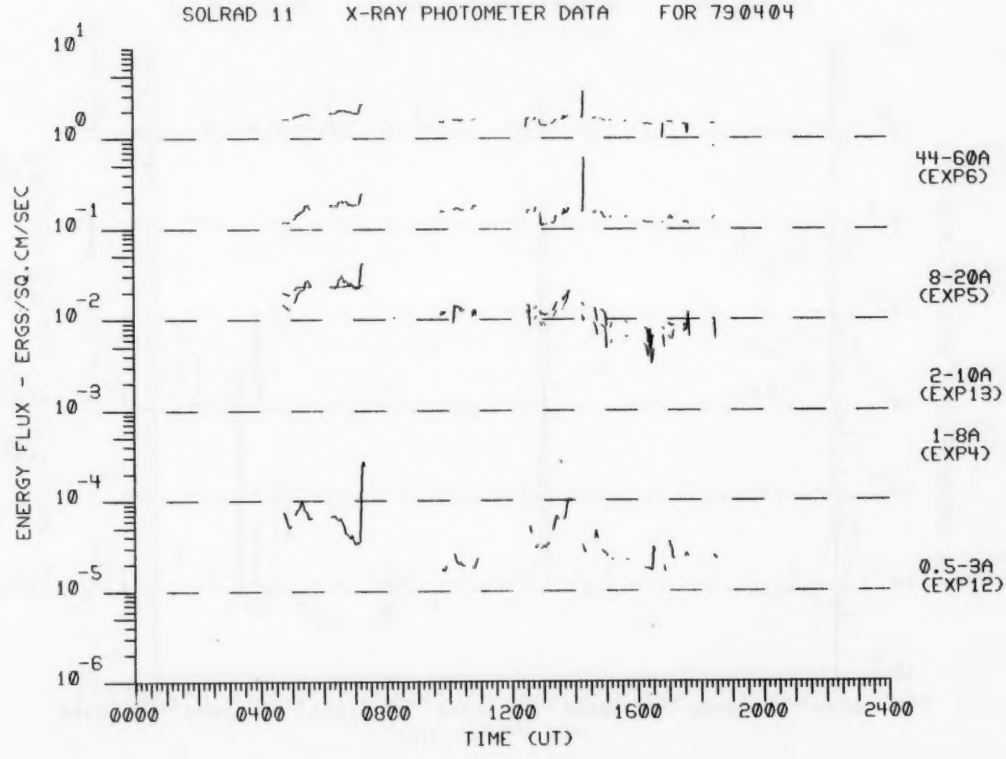
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790401

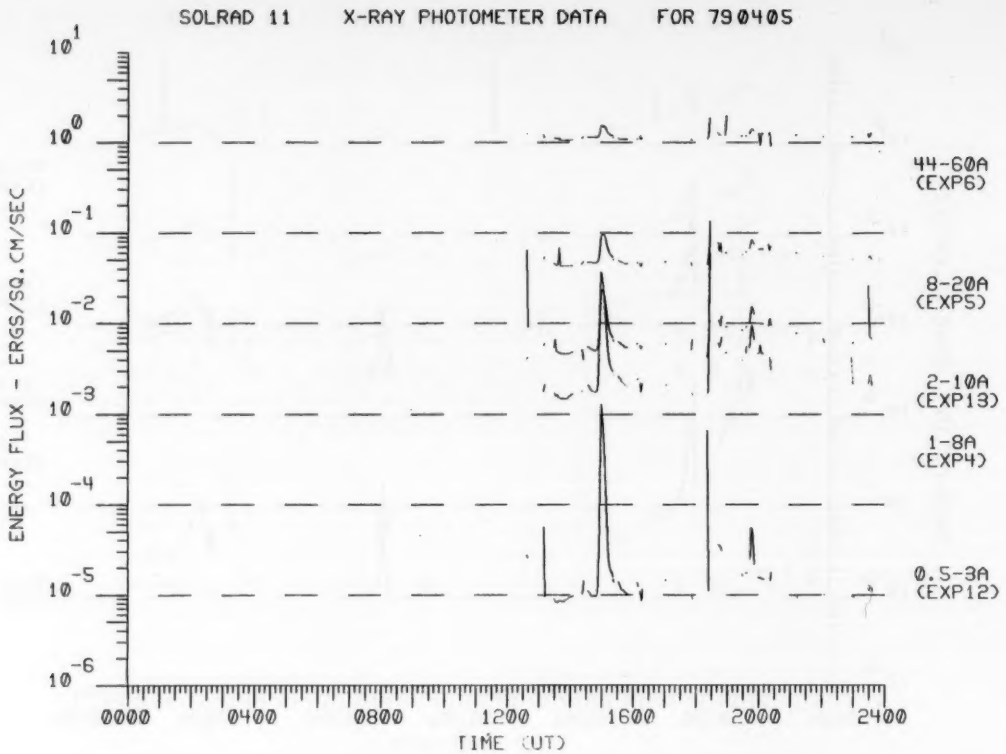


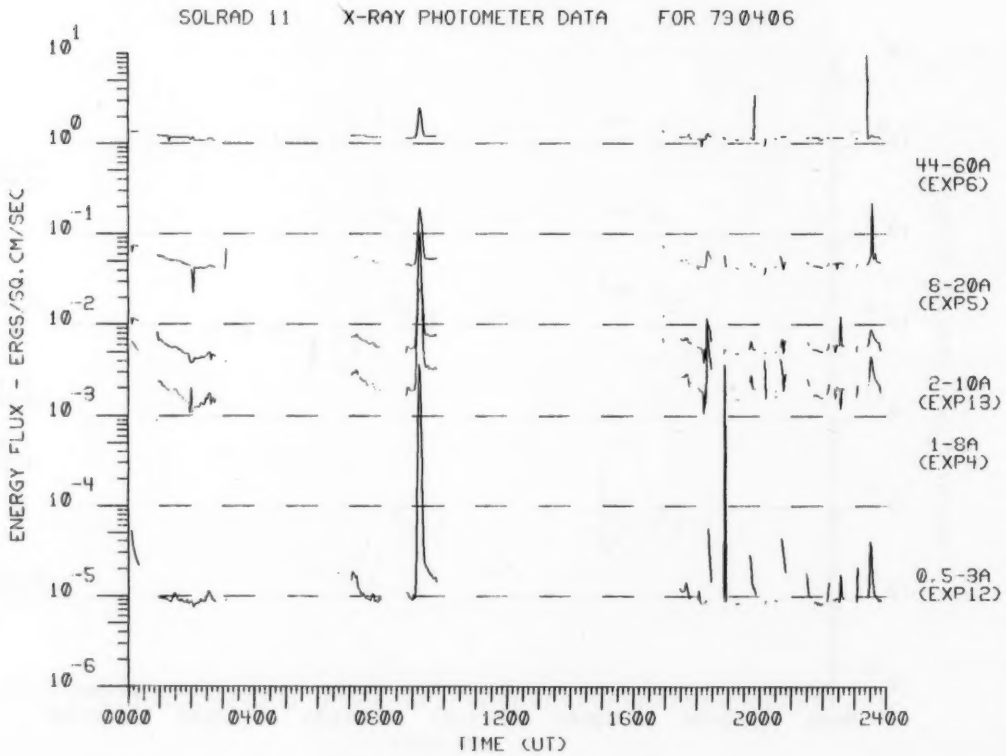
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790402



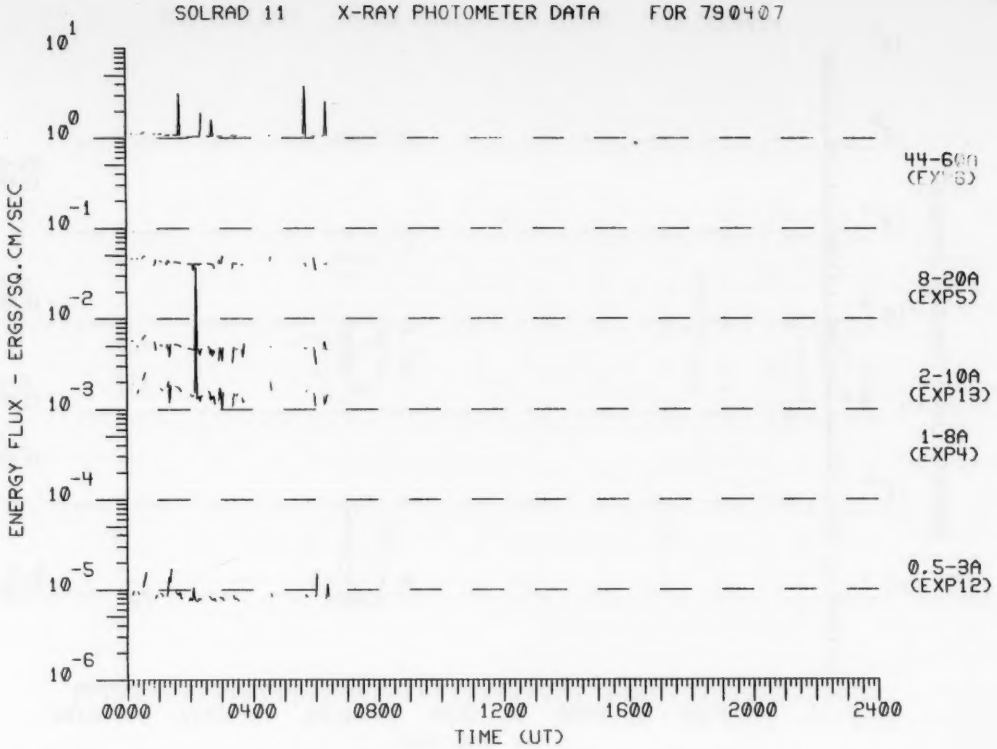

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790403
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790404
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

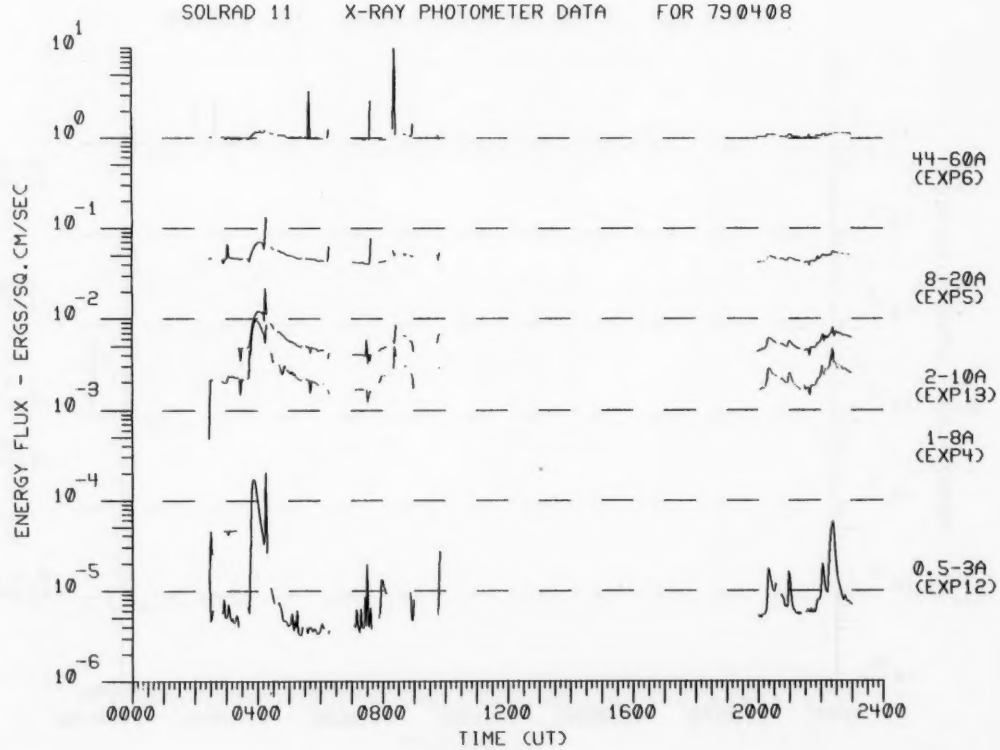

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790405
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

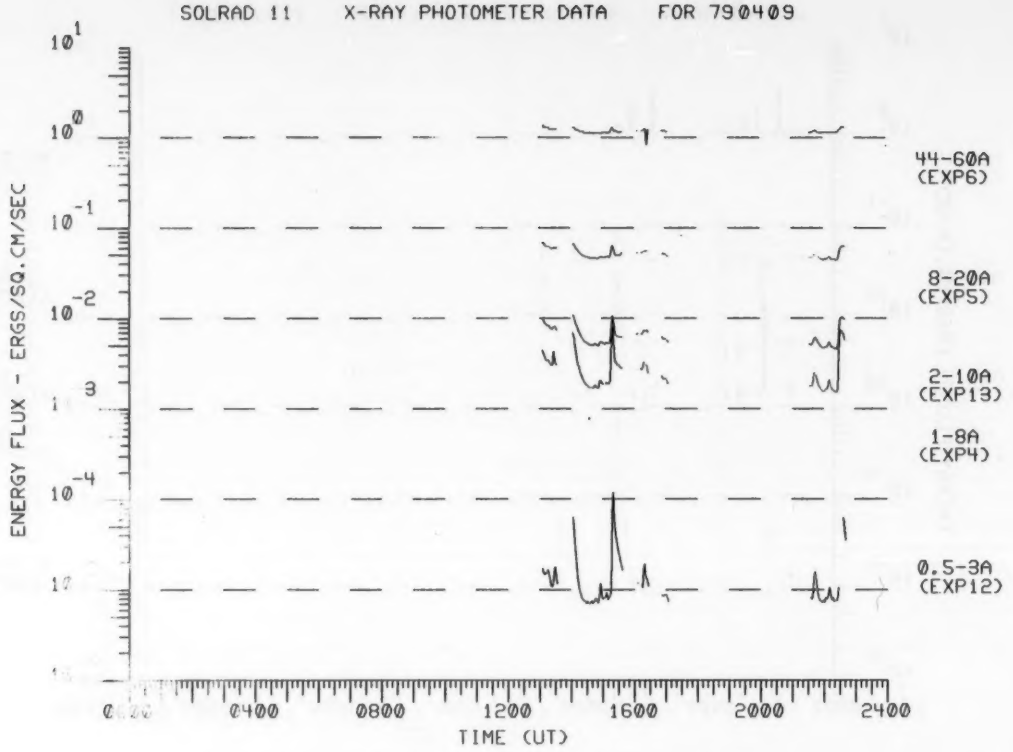

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790406
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

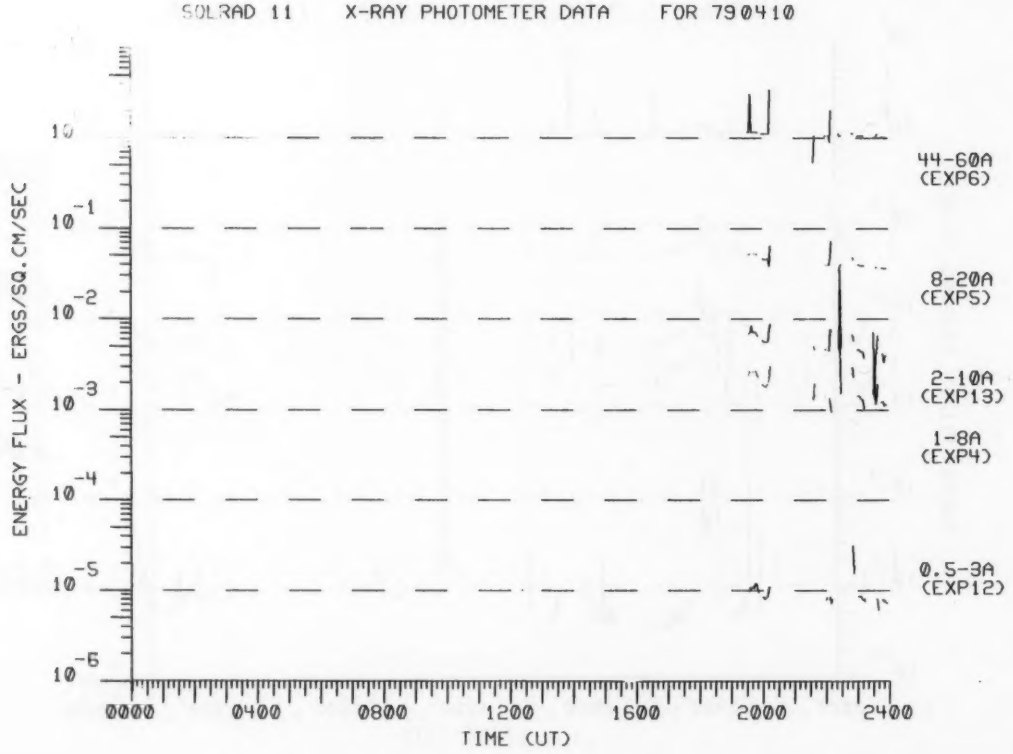
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790407

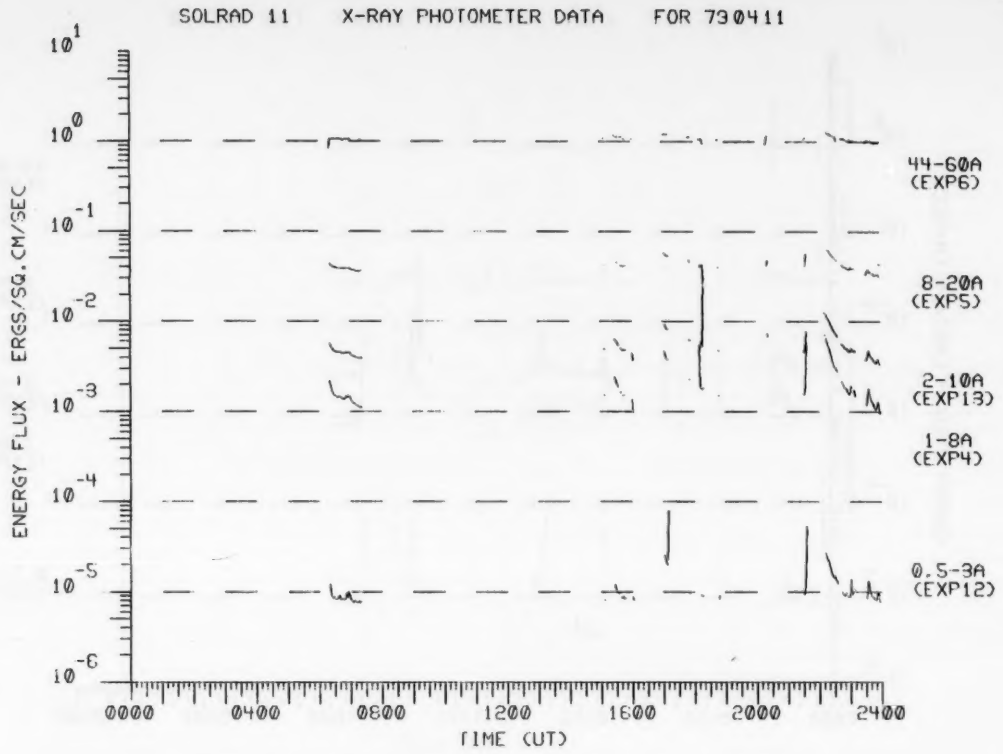


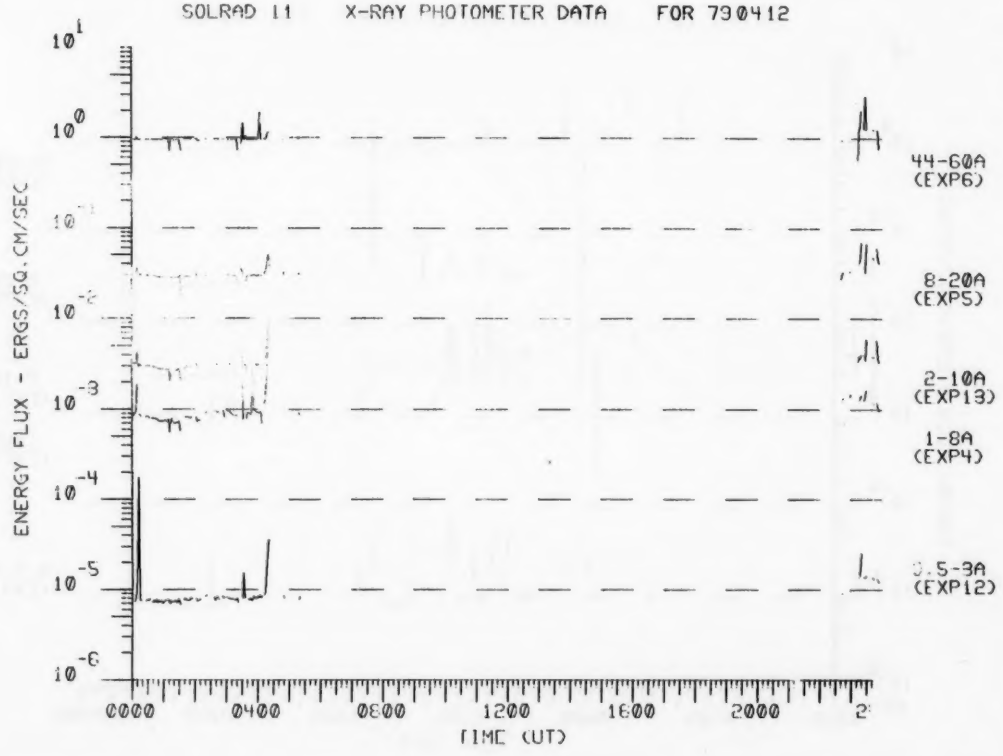
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790408

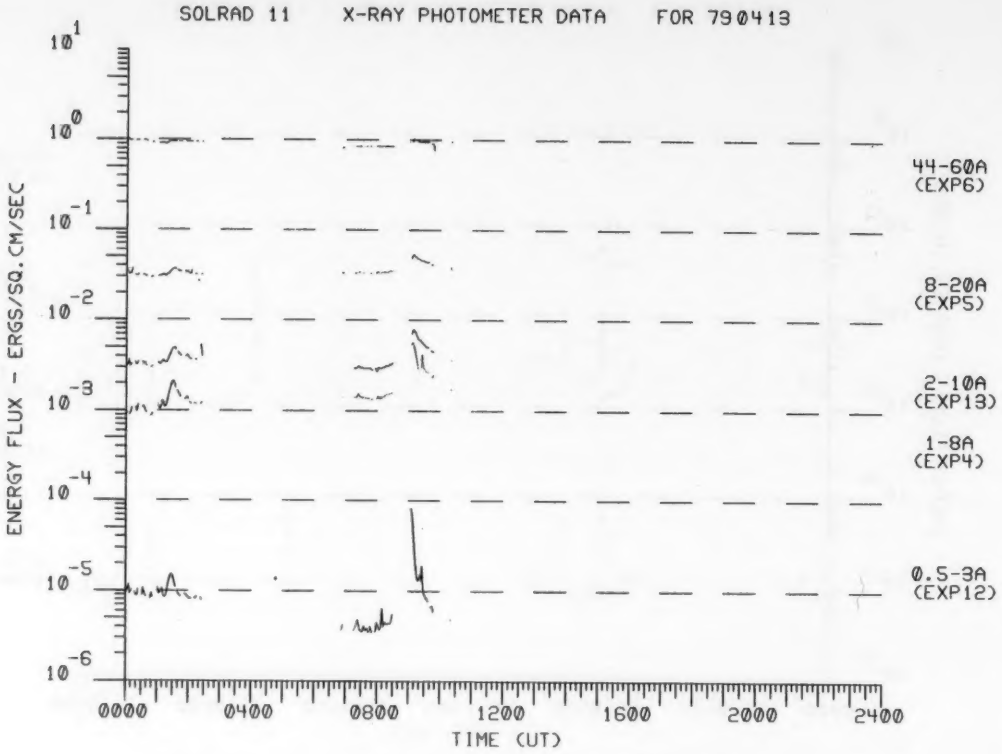


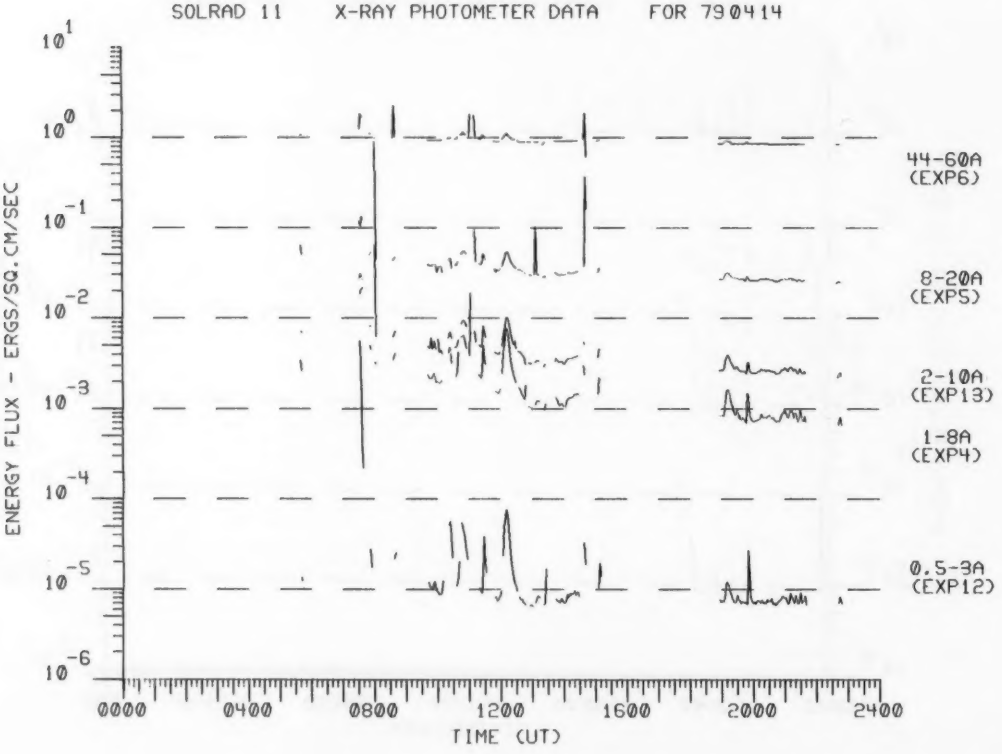

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790409
ENERGY FLUX - ERGS/SQ.CM/SEC
44-60A (EXP6)
8-20A (EXPS)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0400
0800
1200
1600
2000
2400
TIME (UT)

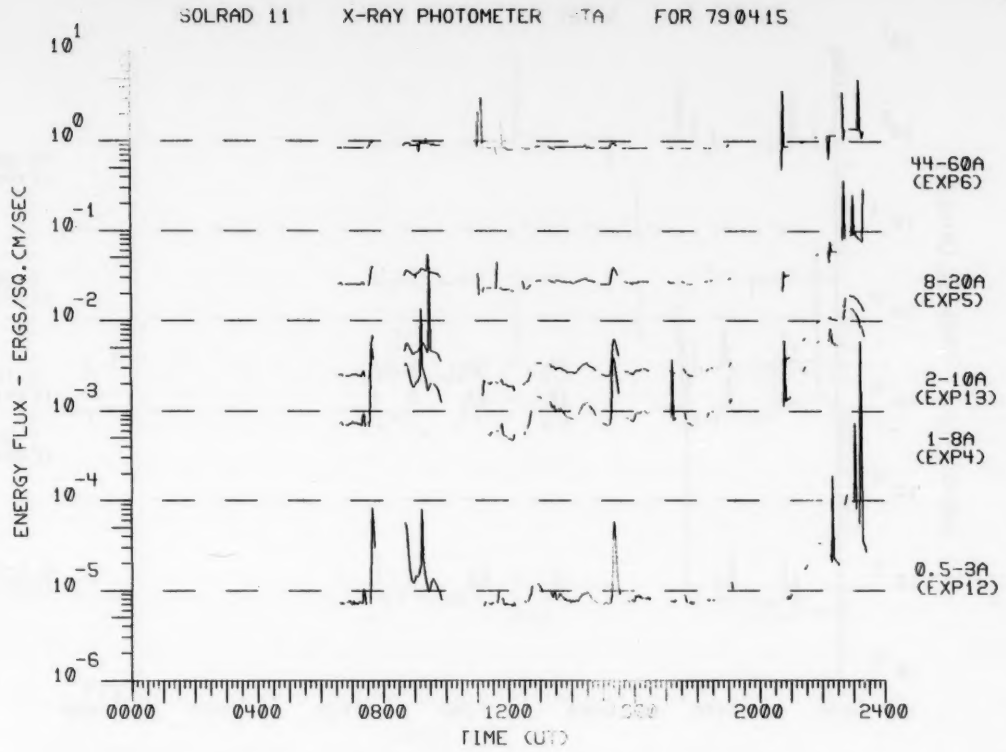

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790410
ENERGY FLUX - ERGS/SQ.CM/SEC
44-60A (EXP6)
8-20A (EXPS)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

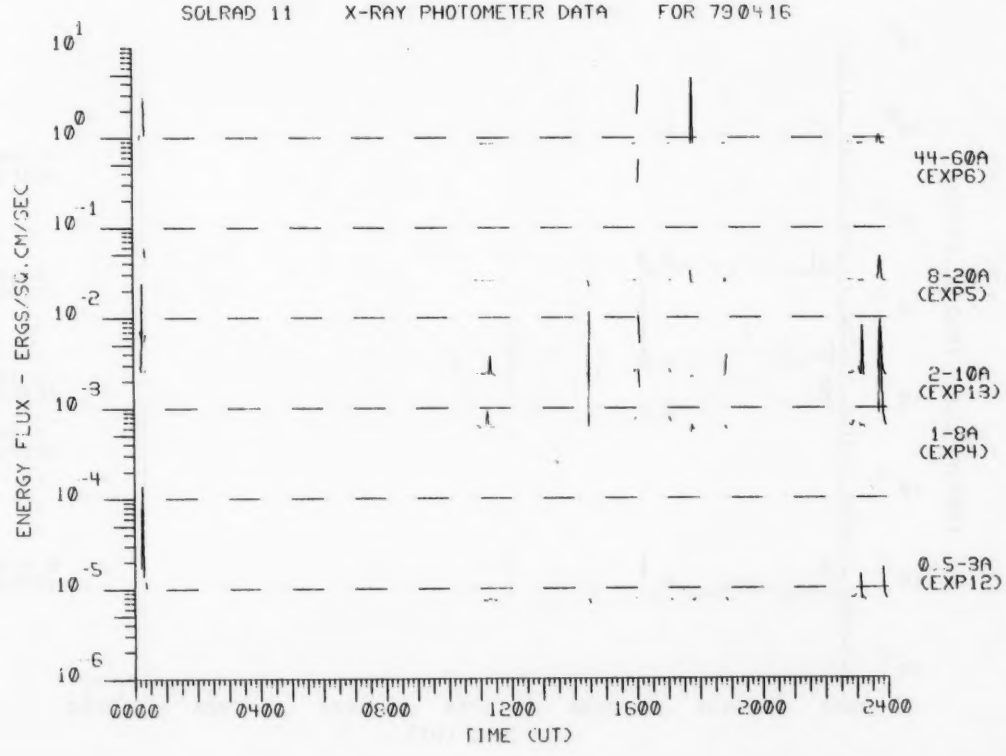

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790411
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

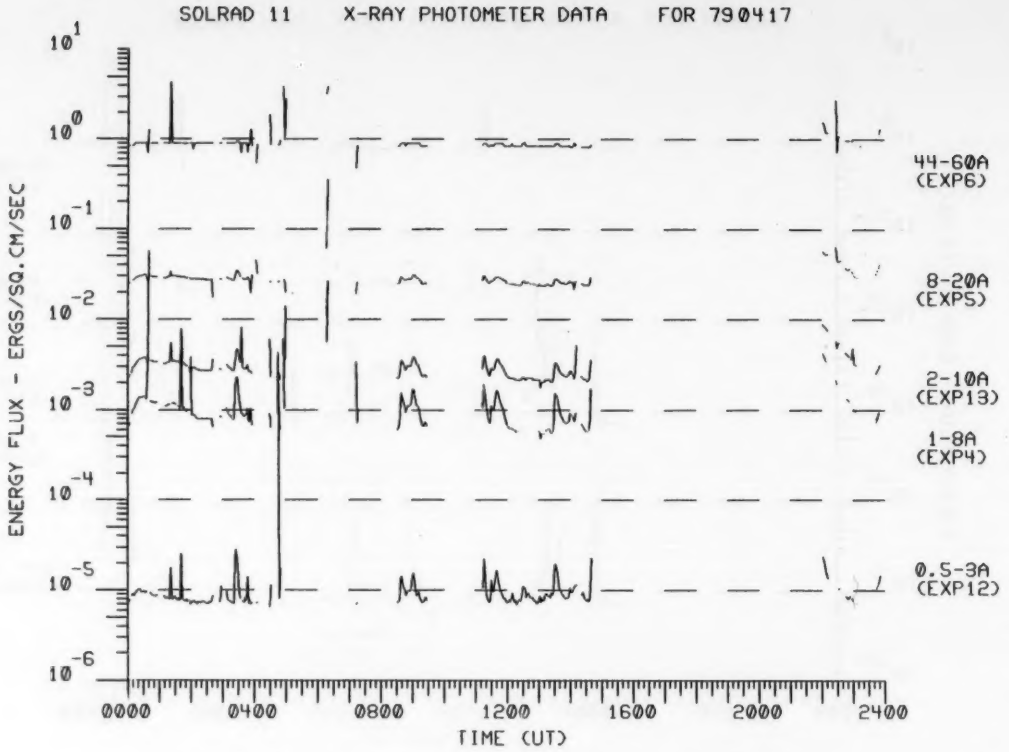

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790412
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790413
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790414
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790415
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790416
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790417
ENERGY FLUX - ERGS/SQ.CM/SEC
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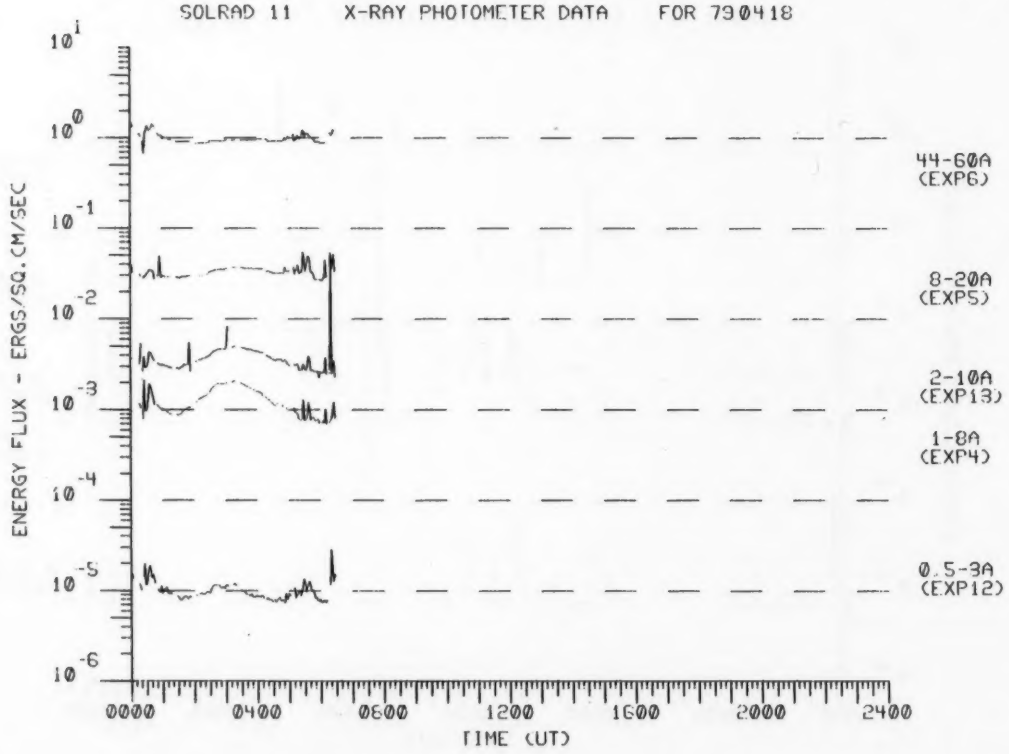
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790418
ENERGY FLUX - ERGS/SQ.CM/SEC
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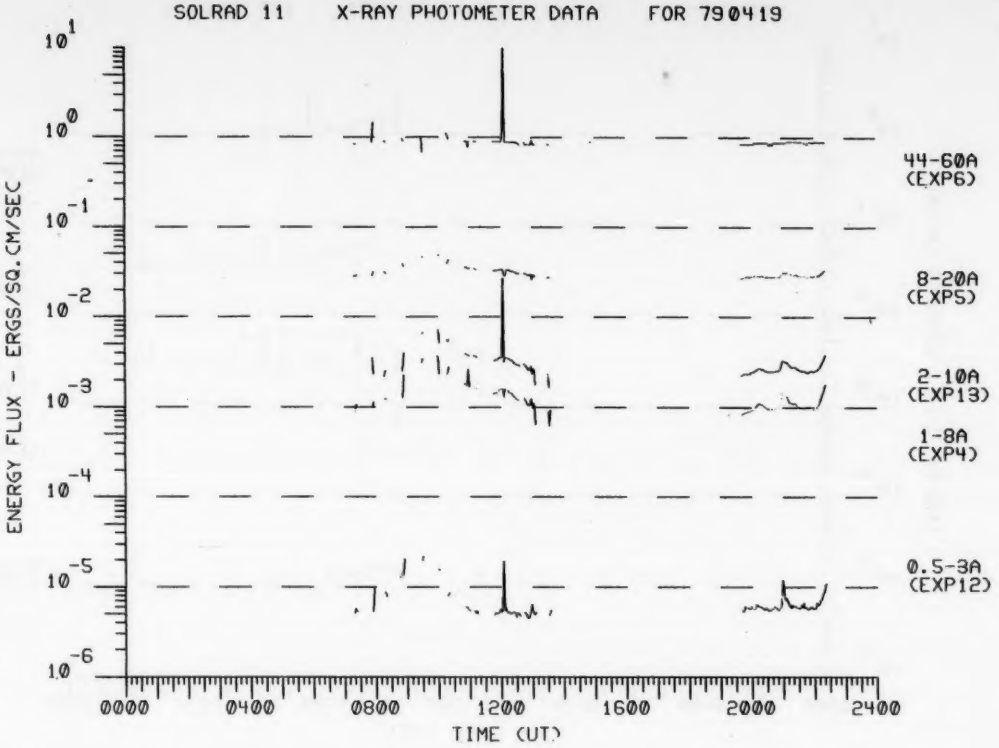
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790419
ENERGY FLUX - ERGS/SQ.CM/SEC
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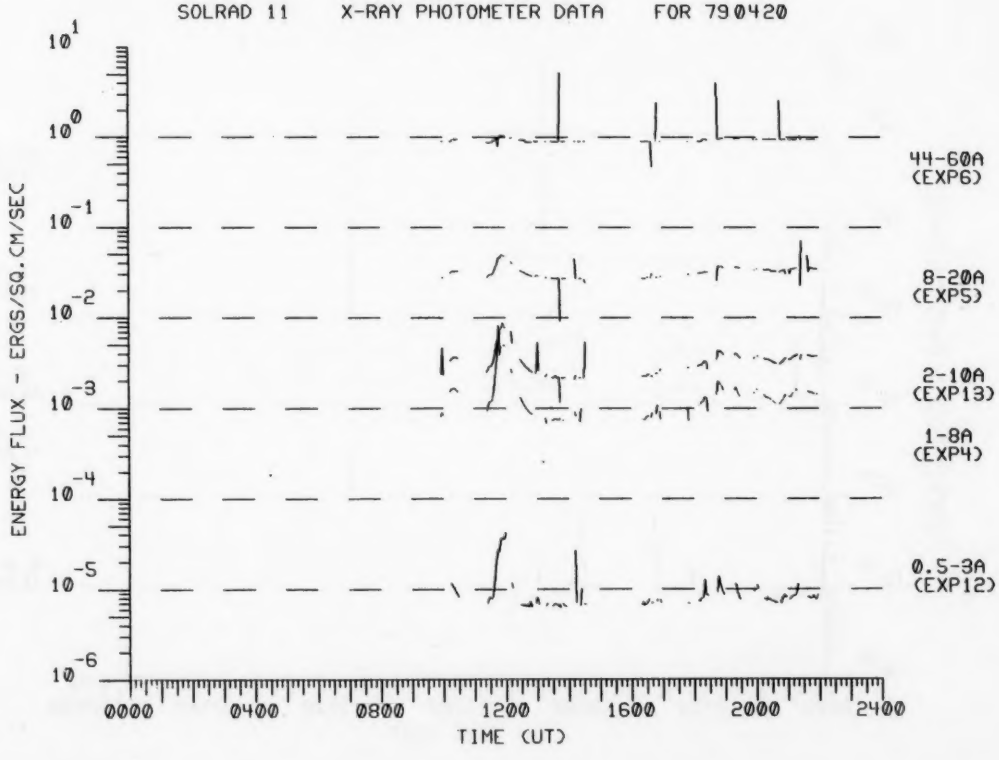
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790420
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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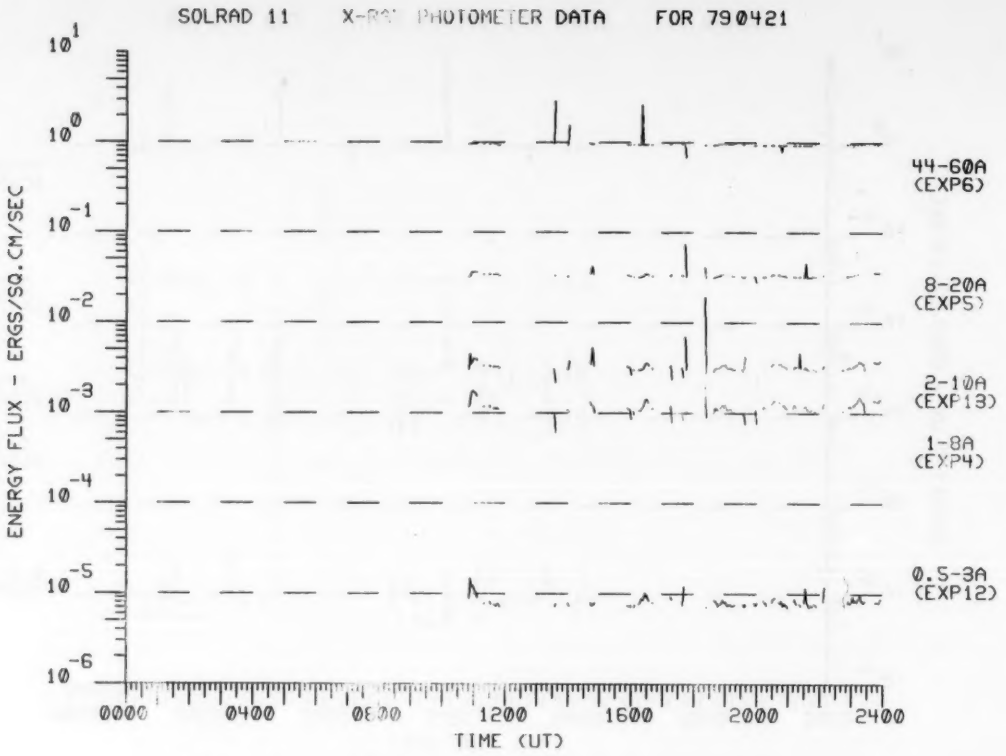
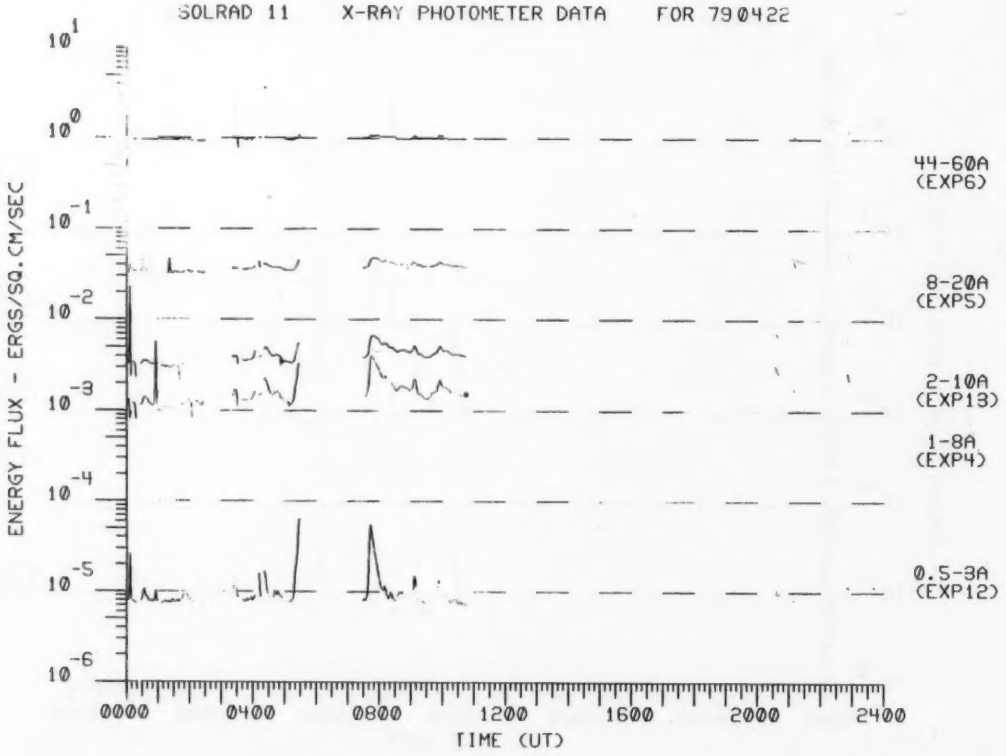
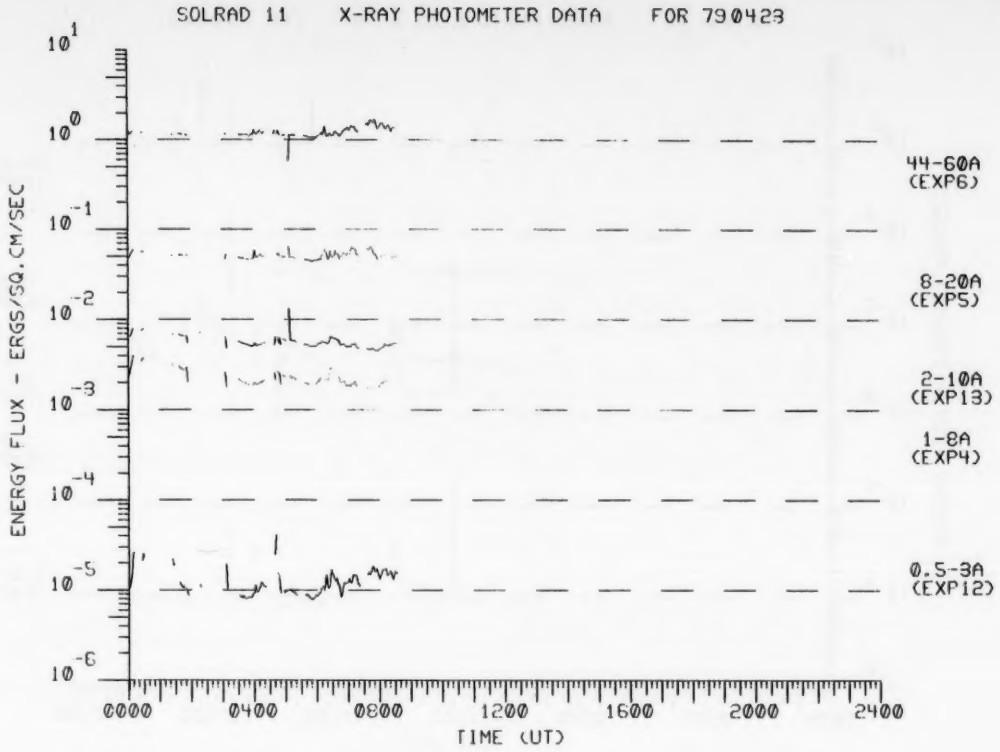
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790421
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790422
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790423
ENERGY FLUX - ERGS/SQ.CM/SEC
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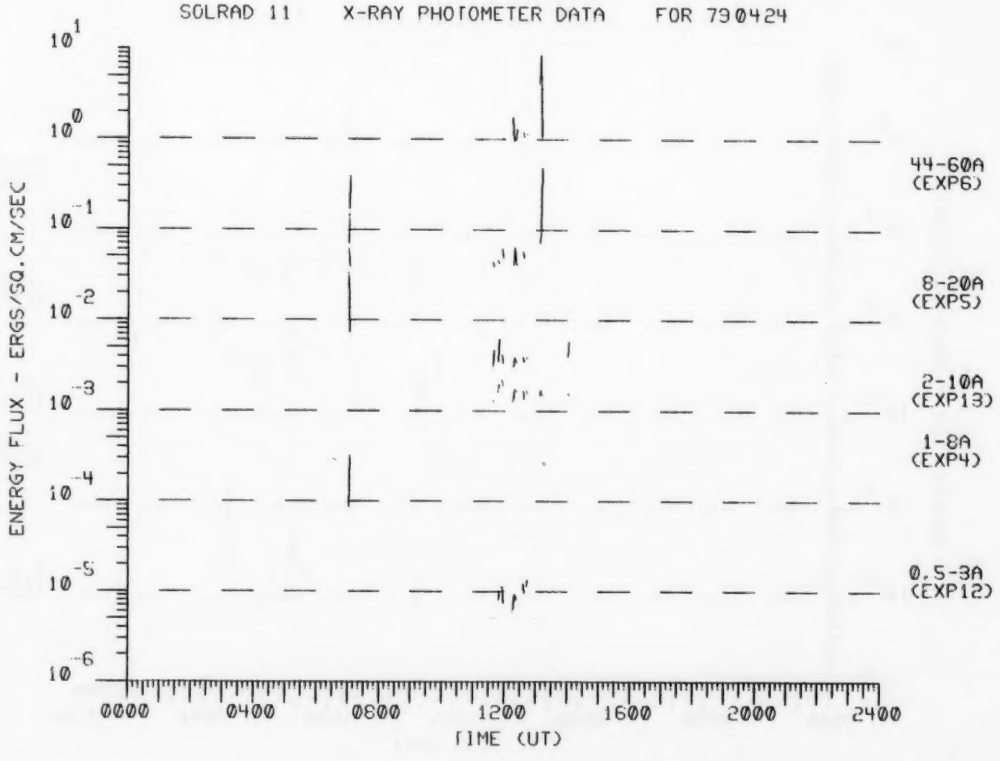
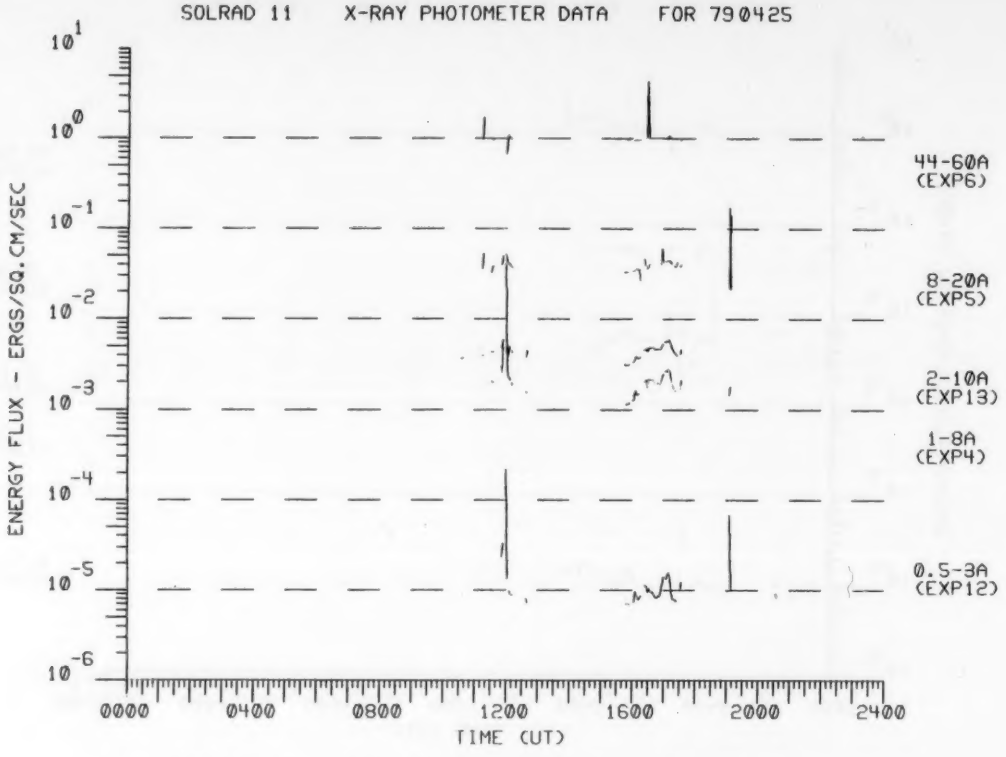
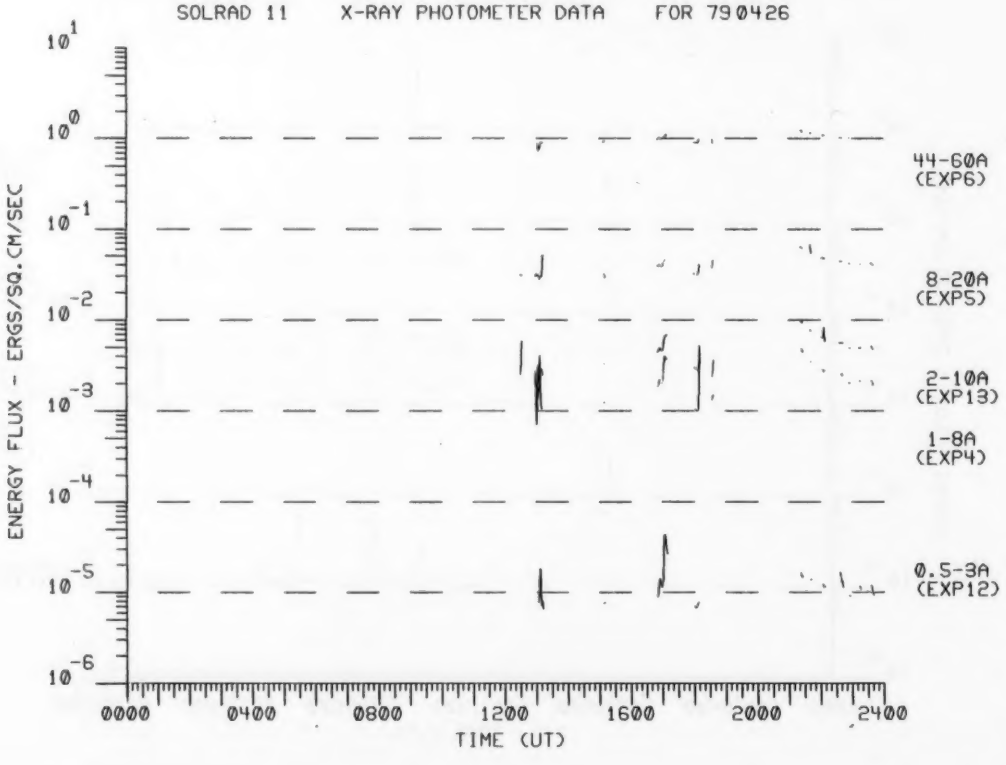
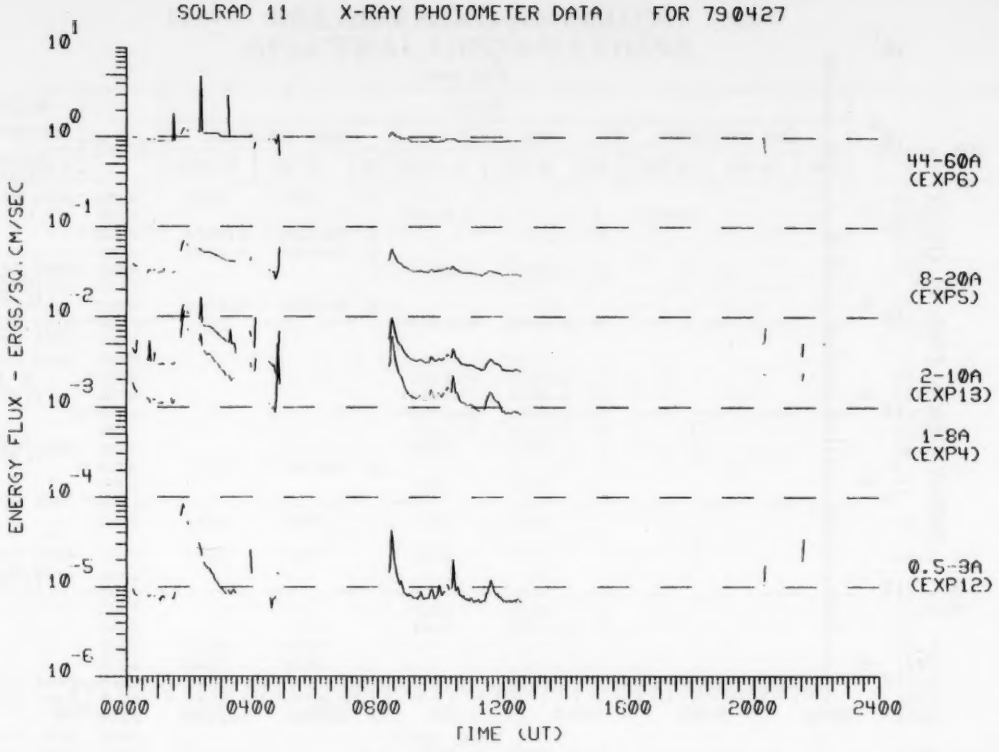
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790424
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

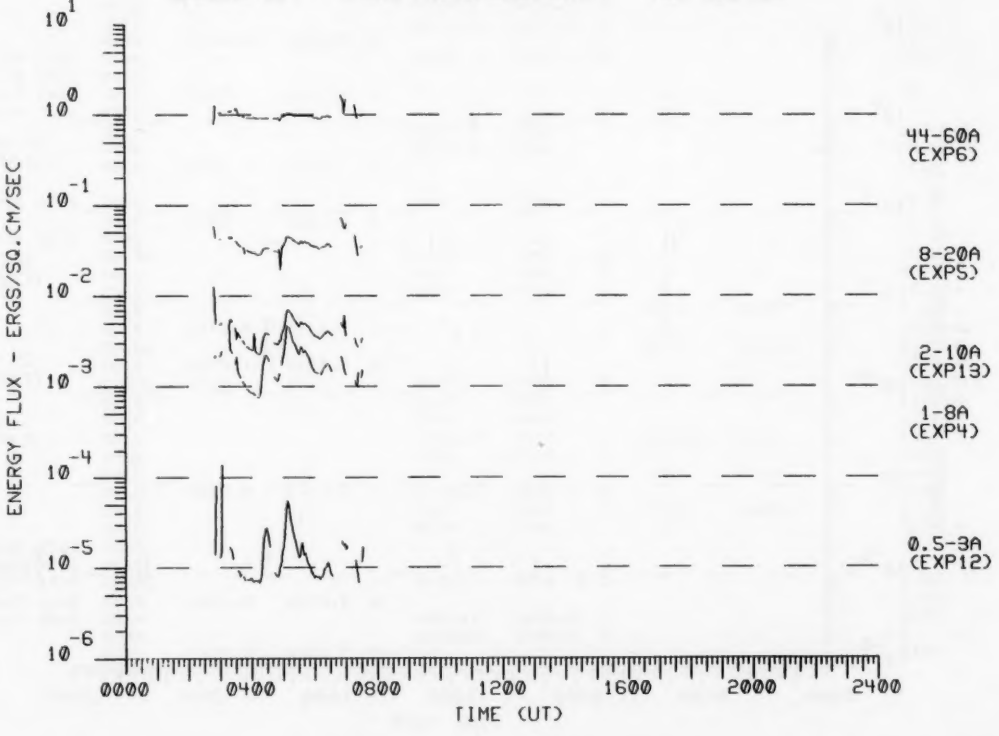

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790425
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

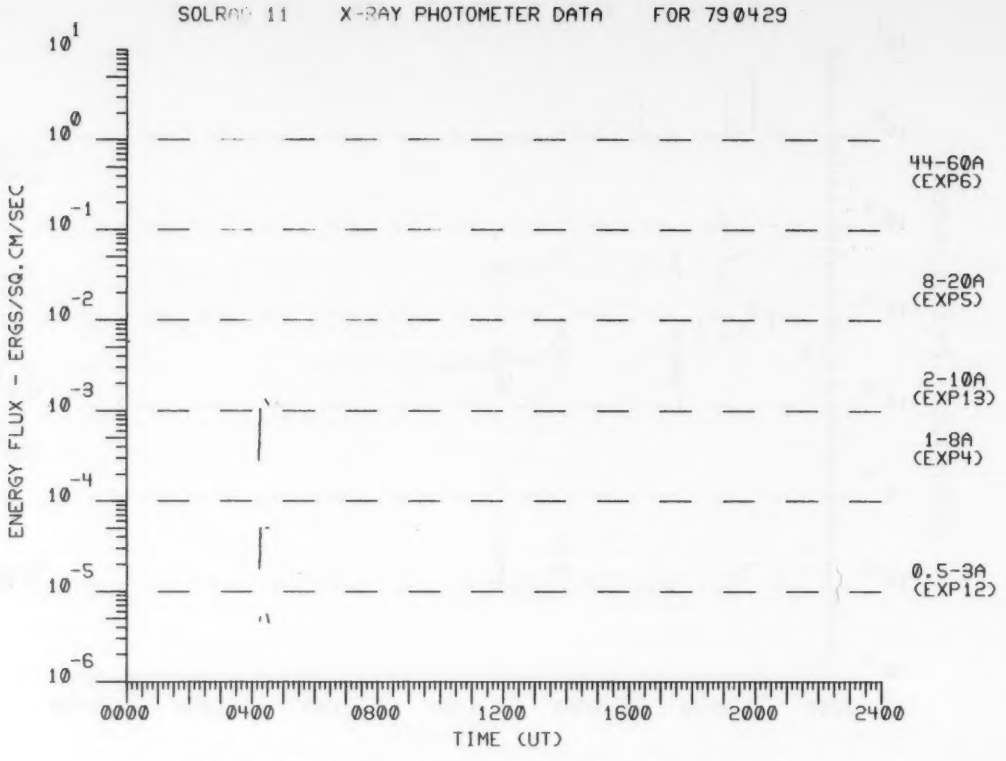

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790426
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

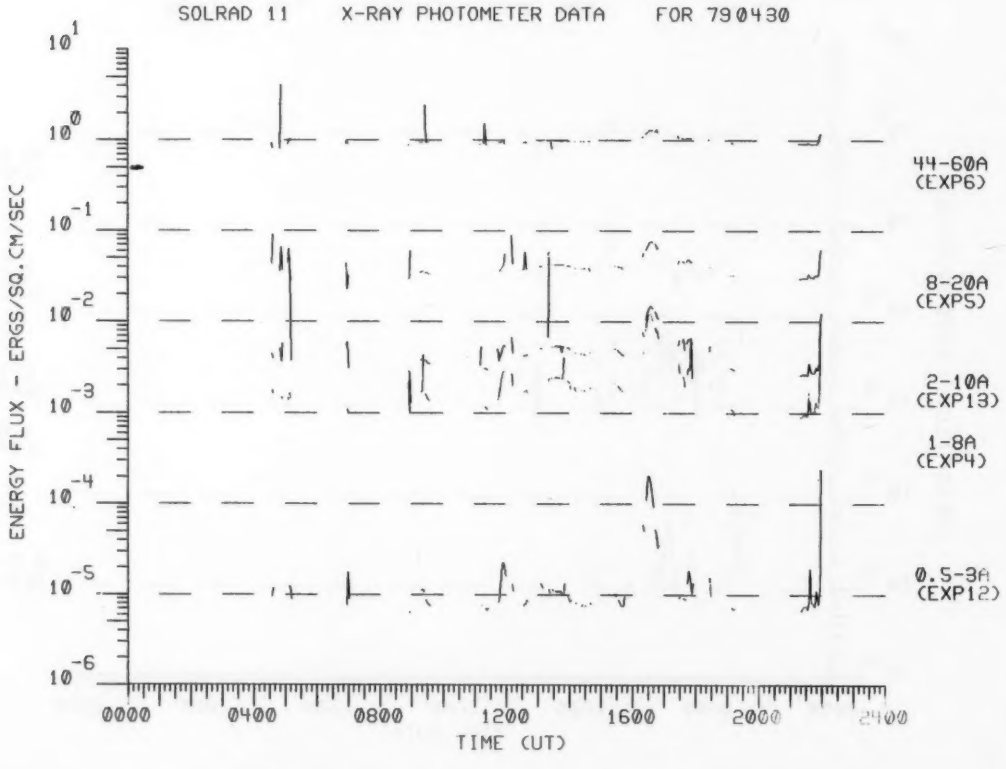
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790427



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790428




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790429
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 790430
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	0736	CULG	0000	0021	1							IS
			CULG				0128.5		1	0128.5		1	IIIB
			CULG	0234.5	0235.5	1							IIIG
			CULG	0524.5	0525.5	2							IIIG
	0538	1050	DURN				0742.7	0742.7	2				III
	0913	1000	MANI										
			DURN	0923.8	0923.8	2							III
	0816	1714	WEIS				0940.3	0940.4	2				IIIB
	1031	2200	SGMR										
	1218	1743	DURN										
			WEIS				1310.6	1713.5	1				IN
			WEIS				1345.7	1346.1	2				IIIG
			WEIS				1347.4	1349.3	2				IIIGG
			WEIS				1419.5	1423.4	2				IIIGG
	2036	2400	CULG				2036	2056					IS,W
			CULG	2039	2040.5	1							I
			CULG				2130	2245	1				IS
	2200	2400	MANI										
			CULG	2214	2400		2245	2400					IS,W
02	0000	0736	CULG	0000	0039		0000	0152					IS,W
	0000	0959	MANI										
			CULG				0019	0112					IIIN,W
			CULG				0023	0024	1				N,RS,DP
			CULG				0027	0027.5	1				DC
			CULG	0424	0623								IN,W
			CULG	0623	0736								IS,W
	0537	0653	WEIS				0636.8	0636.9	1				IIIB
	0742	1715	WEIS	0923.8	0923.9	1							IIIB
			WEIS	0928.1	0929.2	1							IIIG
	1029	2200	SGMR										
	0530	1205	DURN				1100	1205	1				I,DC
			WEIS				1105.8	1106.4	1				IIIG
			WEIS				1125.0	1656.0	1				IN
			WEIS				1139.5	1141.4	3				IIIG
			DURN	1139.5	1139.5	3							III
	1238	1745	DURN				1238 E	1745 D	2				I,DC
	1410	1711	DWIN										
	2035	2400	CULG	2035	2400	1							IS
	2200	2400	MANI										
			CULG				2239.5	2240					UNCLF,W
			CULG				2241.5	2242					UNCLF,W
			CULG	2242	2243	1							IIIGG
03	0000	0736	CULG				0000	0108					IS,W
			CULG	0000	0156	1							IS
	0000	1000	MANI										
			CULG				0107	0147	2				IIIS
			CULG				0107	0147	1				N,RS
			CULG				0108	0736	1				IS,DC
			CULG							0110	0400	1	S.W.F.
			CULG	0111.5	0112	1							IIIB,RS
			CULG							0111	0111.5		IIIG,W
			CULG	0113	0113.5	1							IIIG,RS
			CULG	0133	0530	3	0133	0736	2			IVI	POSSIBLE
			CULG				0147	0306					IIIN,W
			CULG				0306	0416					IIIS,W
			CULG				0416.5	0417	2	0416.5	0417	1	IIIG
			CULG				0416	0506	1				IIIS
			CULG							0417	0434	1	S.W.F.
			CULG	0422.5	0423.5	1	0422.5	0423.5	2				IIIG
			CULG				0427	0428	2	0428	0428.5	1	IIIG
			CULG				0506	0736					IIIN,W
	0529	0608	DURN										
	0533	0700	WEIS										
	0647	1746	DURN				0730	1746 D	2				I,DC
	0602	1440	DWIN	0824.2	0824.2	2							IIIG
	1027	2200	SGMR				1157.0	1207.2	2				IIIS
			SGMR				1404.9	1406.4	3				V
			DWIN	1405.3	1405.5	2							IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
03	2035	2400	CULG				2035	2400	1				IS,DC
			CULG				2035	2400	1				SCINTLLTNS
			CULG				2051	2400					IIIN,W
			CULG	2100.5	2101	1							IIIG
			CULG	2107.5		1	2107.5		1				IIIB
			CULG				2108		1				IIIB
			CULG	2115	2143								IN,W
			CULG	2143	2310	1							IS
	2200	2400	MANI										
			CULG				2208.5		2				IIIB
			CULG	2310	2400								IN,W
			CULG	2342	2342.5	1							IIIG
			CULG	2344.5									IIIB,W
04	0000	0735	CULG	0000	0017		0000	0629					IS,W
	0000	0957	MANI										
			CULG	0017	0351								IN,W
			CULG				0024	0040	1				DC
			CULG				0116.5	0119.5	1				DC
			CULG				0152	0154	1				DC
			CULG	0351	0735								IS,W
			CULG	0428	0428.5	1	0425	0429.5	1				IIIG
			CULG				0445	0447					IIIG,W
	0529	1150	OURN				0529 E	1150	2				I,DC
			CULG	0534	0534.5	1							IIIG
			CULG				0617	0628					IIIS,W
			CULG				0629	0735	1				IS,DC
			OURN				0703.9	0712.1	3				IIIGG
			CULG	0710.5	0713	2	0710.5	0714.5	2				IIIGG
			CULG				0715.5	0716.5	1				IIIG
			WEIS				0735.8	1047.0	1				IN
	0723	1648	WEIS				0748.0	0748.3	2				IIIB
	0856	1159	OWIN										
	1025	2200	SGMR										
	1203	1210	OURN	1204.5	1205.0	1	1204.7	1205.0	3				IIIG
	1238	1413	OURN										
	1433	1746	OURN				1500	1746 D	1				I,DC
	1655	1718	WEIS										
			OURN	1739.2	1742.1	3	1739.2	1742.1	3				IIIG
			CULG	2035	2122								IN,W
			CULG				2035	2148					IS,W
	2035	2400	CULG				2035	2049					IIIS,W
			CULG				2036	2036.5	1				IIIG
			CULG				2104.5						IIIB,W
			CULG				2114						IIIB,W
			CULG	2122	2400								IS,W
			CULG				2152.5		1				IIIB
	2159	2400	MANI										
			CULG	2337	2343	1							FAST DRIFT
			CULG				2346	2347	1				I
05	0000	0735	CULG	0000	0048								IS,W
	0000	0958	MANI										
			CULG	0016	0017	1							IIIGG
			CULG	0018.5	0019	1							IIIG
			CULG	0020	0020.5	1							IIIG
			CULG				0152		1	0152		1	IIIB
			CULG	0207	0213	1							I
			CULG	0315	0735		0300	0709					IN,W
			CULG				0517	0517.5	1				UNCLF
			CULG				0518.5		1				IIIB
	0531	1137	WEIS				0607.2	0609.4	2				IIIG
			CULG				0607	0608	2				IIIG
			CULG				0608.5	0609.5					IIIG,W
			CULG				0648	0649	1				IIIG
	1147	1723	WEIS				0649.3	0648.9	2				IIIG
	0524	1746	OURN				0650	1500	1				I,DC
			CULG				0709	0735	1				IS
	0803	1201	OWIN										
			WEIS				0938.7	1429.3	2				I

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05	1023	2200	SGMR										
			DURN	1457.0	1457.3	2	1457.0	1457.3	2				IIIG
			DURN	1659.6	1701.1	3	1659.6	1659.9	3				IIIGG
	2035	2400	CULG	2139	2141	2	2139.5	2141	1				IIIGG
	2157	2400	MANI										
06	0000	0957	MANI										
	0000	0735	CULG	0154	0401								IS,W
			CULG	0356	0358	1							IIIGG
			CULG				0422.5	0423	2				IIIB
			CULG				0423	0424.5	2				IIIG,V
			CULG				0426	0426.5	1				IIIB,U
	0527	1657	WEIS				0652.0	0653.0	1				IIIG
			CULG				0652	0653	1				UNCLF
			WEIS				0740.6	0740.8	2				IIIG
			WEIS				0745.4	0745.7	1				IIIB
	0535	1747	DURN				0909.5	0910.0	3				IIIG
			DURN	0911.0	0911.3	3							IIIG
	0741	1240	DWIN	0911.0	0911.5	2							IIIG
			WEIS				1151.5	1151.7	2				IIIB
	1022	1900	SGMR				1238.3	1239.4	1				IIIG
			WEIS				1239.2	1239.6	2				IIIG
	1724	1737	WEIS										
	2035	2400	CULG	2054	2055	1							IIIGG
			CULG	2147	2153								IN,W
	2154	2400	MANI										
			CULG	2358	2400								I,W
07	0000	0735	CULG	0000	0148								IS,W
	0000	0957	MANI										
			CULG	0340	0735								IN,W
			CULG	0419.5	0420	2							IIIG
			CULG				0437.5	0438.5					UNCLF,W
	0525	0639	WEIS				0541.7	0542.7	1				IIIG
			CULG				0649.5	0650.5					IIIG,W
	0527	1335	DURN				0730	0900	1				I
	0807	1723	WEIS				0946.1	0946.2	1				IIIB
	1021	2200	SGMR										
			WEIS				1522.6	1523.0	1				IIIG
			WEIS				1525.1	1525.7	1				IIIG
			WEIS				1703.4	1703.5	2				U
	2035	2400	CULG										
	2201	2400	MANI										
08	0000	0639	MANI										
	0000	0734	CULG	0144.5	0145	1	0144.5	0145	1				IIIG,U
			CULG	0146.5	0147	1	0146.5	0147	1				IIIG
			CULG				0314	0314.5					I,W
			CULG				0412.5	0413	2				IIIG,U
			CULG				0451	0451.5					IIIG,W
			CULG	0543.5	0544	1							IIIG
	0523	1552	WEIS				0700.7	0702.5	1				IIIG
			CULG				0701						IIIB,W
			CULG				0702.5						IIIB,W
			WEIS				0732.2	0732.4	2				IIIG
			CULG				0732.5						IIIB,W
	0740	1002	MANI										
			WEIS				0832.3	0832.5	1				U
			WEIS				0840.3	0840.8	1				IIIG
			WEIS				1032.3	1032.7	2				IIIB
			WEIS				1045.4	1045.5	2				IIIB
	0732	1750	DURN				1200	1600	1				I
			WEIS				1211.8	1212.2	2				IIIG
			WEIS				1214.0	1214.4	1				IIIB
			WEIS				1230.9	1231.0	1				IIIB
			WEIS				1232.2	1232.3	1				IIIB
			WEIS				1233.8	1240.0	2				IIIGG,DP
	1020	2200	SGMR				1234.5	1240.0	1				IIIS
			DURN	1407.0	1407.1	1	1406.9	1407.4	1				IIIG
			DURN				1508.0	1508.6	3				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
08			WEIS				1508.0	1508.9	1				IIIG
			DURN				1517.1	1517.8	3				IIIGG
			WEIS				1517.2	1517.8	2				IIIG
	2034	2400	CULG	2045	2046.5	1	2044.5	2045.5	1				IIIG
			CULG				2113						IIIB,W
	2150	2400	MANI										
			CULG				2249	2250	1				IIIB
			CULG	2343.5	2344	1							I
09	0000	0958	MANI										
			CULG				0053.5	0056	2				IIIG
	0000	0734	CULG				0053.5	0054	1				UNCLF
			CULG	0244.5	0245	1	0244.5	0245	1				IIIG
			CULG	0319	0319.5								IIIG,W
			CULG	0331.5	0332.5	1	0331.5	0332.5	1				IIIG
			CULG				0404.5	0405	1				UNCLF
	0612	1726	WEIS				0755.5	0755.8	1				IIIB
	0521	1752	DURN				0943.8	0944.3	3				IIIGG
			DURN	1056.8	1057.0	1	1056.8	1057.0	1				IIIG
			WEIS				1141.8	1142.2	2				IIIG
			DURN				1351.5	1354.1	3				IIIGG
			WEIS				1352.6	1354.1	2				IIIG
			WEIS				1505.2	1505.7	2				IIIG
			DURN				1508.6	1508.9	1				IIIG
			WEIS				1508.7	1511.1	2				IIIG
	1020	2200	SGMR				1511.0	1511.3	2				V
	2034	2400	CULG				2118						IIIB,W
	2150	2400	MANI										
			CULG				2210.5	2211	1				IIIG
			CULG				2216	2217					UNCLF,W
			CULG				2251.5						IIIB,W
			CULG				2254	2254.5	1				IIIB
10	0000	0955	MANI										
	0000	0734	CULG	0131.5	0132								IIIG,W
			CULG				0141.5	0153	1				UNCLF
			CULG				0457.5	0458					IIIG,W
			CULG	0457.5	0503.5	2							IIIGG,U
			CULG				0501	0502	2				IIIG
			CULG				0507.5						IIIB,W
			CULG	0508	0509								IIIG,W
	0519	1727	WEIS				0610.0	0611.3	2				IIIG,U
			CULG				0610	0610.5	1				IIIG
			CULG				0611	0611.5					UNCLF,W
			CULG				0618	0621					IIIG,W,U
			WEIS				0619.3	0621.8	1				IIIG
			CULG				0621.5	0622	1				IIIB
			WEIS				0711.0	0711.5	1				IIIG
			CULG				0711	0711.5	2				IIIB,V
	0518	1753	DURN				0834.9	0838.3	3				IIIGG
			WEIS				0835.2	0838.7	2				IIIGG
	1019	2200	SGMR				1249.5	1250.1	1				III
			WEIS				1249.6	1250.2	2				IIIG
			WEIS				1454.7	1456.4	2				IIIG
			SGMR				1718.1	1727.0	2				IIIS
			WEIS				1718.6	1721.0	2				IIIGG
			WEIS				1724.3	1725.7	2				IIIG
			DURN	1724.4	1726.0	1	1724.5	1725.8	3				IIIGG,RS
	2033	2400	CULG				2041.5	2043	2				IIIG
	2150	2400	MANI										
			CULG	2240	2241	1							IIIG
			CULG	2302	2302.5	1							I
			CULG				2315	2315.5	1				IIIG
11	0000	0958	MANI										
			CULG	0011.5	0013								IIIG,W
	0000	0729	CULG	0019.5			0019.5						IIIB,W
			CULG	0029.5									IIIB,W
			CULG	0039	0039.5								IIIG,W
			CULG				0200.5	0201					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
11			CULG	0456.5	0457	3							FAST DRIFT
			CULG	0523	0523.5	1							FAST DRIFT
			CULG	0538.5	0539	1							FAST DRIFT
			CULG	0725	0725.5	1	0725	0725.5	1				IIIG
	0543	1125	DURN				0925.7	0927.3	3				IIIGG
	0517	1739	WEIS				0925.7	0926.8	2				IIIGG
			WEIS				1134.3	1137.3	2				IIIG
	1015	2200	SGMR				1134.4	1137.0	1				IIIG
	1152	1756	DURN	1154.2	1154.3	2							IIIG
			DURN	1325.7	1340.5	3	1326.0	1340.5	3				IIIG,N
			WEIS				1326.0	1329.6	2				IIIG,U
			SGMR				1326.3	1327.0	2				V
			DURN				1326	1340					I,DC,C
			WEIS				1330.0	1333.0	1				CONT
			WEIS				1334.7	1341.5	3				IIIGG
			SGMR				1339.4	1340.9	2				IIIG
			WEIS				1431.6	1439.8	2				IIIG
			DURN				1431.6	1435.0	3				IIIGG
			WEIS				1459.4	1501.2	3				IIIG
			DURN				1459.5	1459.9	3				IIIG
			SGMR				1459.7	1500.9	2				V
	2033	2400	CULG	2041	2042	1	2041	2042	2				IIIG
			CULG	2134	2145	1	2135	2145	1				IIIS
			CULG	2143	2143.5	2	2143	2143.5	2				IIIB
			CULG				2156	2159	2				IIIGG,V
	2156	2400	MANI										
			CULG	2244		1	2244	2244.5	1				IIIG
			CULG				2245	2245.5					IIIG,W
			CULG				2305	2306.5	1				IIIG
12	0000	0955	MANI										
	0000	0733	CULG	0009	0009.5	1							IIIG
			CULG				0249		1				IIIB
			CULG				0250.5		1				IIIB
			CULG	0337.5	0338.5								IIIG,W
			CULG	0358									IIIB,W,RS
			CULG				0401.5		1				IIIB
			CULG	0410	0419	1							IIIN
			CULG	0418.5	0421	1	0418.5	0422	3	0419.5	0420.5	1	IIIGG,V,U
	0515	0945	DURN										
	0515	1034	WEIS				0547.4	0547.7	1				IIIG
	1014	1130	DURN										
	1014	2200	SGMR										
	1042	1730	WEIS				1438.7	1439.1	2				IIIG
			WEIS				1449.3	1449.5	2				IIIG,U
			WEIS				1509.7	1509.9	1				IIIG
			WEIS				1514.7	1519.4	3				IIIGG
			WEIS				1636.5	1638.5	3				IIIGG
	2033	2400	CULG	2051	2051.5	1							IIIG
			CULG	2052	2052.5	1							IIIG
	2141	2400	MANI										
			CULG	2203.5	2204.5	1							IIIG
			CULG				2244	2250					IIIS,W
			CULG				2247.5	2249	1				N,RS,DP
			CULG				2253						IIIB,W
			CULG				2257.5						IIIB,W
			CULG	2337	2337.5		2337.5						IIIB,W
			CULG				2341	2341.5					UNCLF,W
			CULG				2358		1				IIIB
			CULG				2359		1				IIIB
13	0000	1001	MANI										
	0000	0732	CULG				0012	0057					IIIN,W
			CULG	0016	0016.5	1	0016	0016.5	1				IIIG
			CULG				0029.5		1				IIIB
			CULG	0034	0158	1							IIIN
			CULG	0155	0156	1							I
			CULG				0228	0228.5	1				IIIB
			CULG	0235	0236	2	0235.5	0236	1				IIIG
			CULG	0237.5	0238	1	0237.5	0238	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
13			CULG	0240	0241.5	2	0240	0242	2				IIIG,V,U
			CULG				0245.5		1				IIIB
			CULG				0526.5						IIIB,W
	0513	1134	DURN	0547.0	0547.3	2							IIIG
			CULG	0547	0547.5	1							IIIG
			DURN	0619.4	0619.5	1							IIIG
			CULG	0619									UNCLF,W
			CULG				0626.5						IIIB,W
			CULG	0656	0656.5								UNCLF,W
			CULG				0657	0719.5	1				II
			CULG				0716.5	0717					IIIG,W
			DURN	0954.3	0954.7	1	0954.3	0954.7	1				IIIG
			DURN	1050.0	1050.6	3	1048.2	1051.3	3				IIIGG
	1011	2200	SGMR				1050.1	1051.1	1				V
	1202	1235	DURN										
			SGMR				1344.9	1349.0	2				V
	1302	1758	DURN	1345.7	1346.8	3	1346.4	1346.8	2				IIIGG
			DURN				1536.9	1537.4	3				IIIGG
			DURN	1611.7	1620.7	3	1611.7	1620.7	3				IIIGG
			SGMR				1611.8	1613.1	3				V
			SGMR				1833.8	1834.0	2				IIIS
	2150	2400	MANI										
	2152	2400	CULG	2339.5	2344.5	2	2342	2342.5	1				IIIGG
			CULG	2348.5	2349.5	1							IIIG
			CULG	2355	2355.5	1	2355.5		1				IIIG
14	0000	1000	MANI										
	0000	0732	CULG	0002.5	0003.5	1	0000.5	0004.5	2	0002	0004.5	1	IIIGG,V
			CULG	0134	0732								IN,W
			CULG				0340.5	0341					IIIG,W
			CULG	0353.5	0354								IIIG,W
			CULG				0413	0413.5	1				IIIG
	0511	0930	DURN	0537.5	0537.6	2							IIIG
			DURN				0540	0800	1				I
	0608	0715	WEIS										
			CULG				0702.5						IIIB,W
	0723	1731	WEIS				0747.2	0748.2	1				IIIG
			WEIS				0823.3	0823.7	2				IIIG
	1014	1152	DURN	1022.7	1023.3	2	1022.7	1023.3	2				IIIG
			WEIS				1042.0	1044.3	2				IIIG
	1008	2200	SGMR				1042.2	1043.9	1				V
			WEIS				1311.2	1311.5	2				IIIG
			WEIS				1340.9	1341.6	3				IIIG
			SGMR				1340.9	1342.0	1				IIIG
	1238	1759	DURN	1440.0	1443.7	3	1440.0	1443.7	3				IIIGG
			WEIS				1440.0	1449.0	3				IIIGG/V
			SGMR				1440.9	1451.5	3				IV
			DURN				1442	1520	1				I
			WEIS				1448.5	1501.5	2				II HARMONIC
			SGMR				1450.0	1501.0	2				II
	2032	2400	CULG	2053.5	2054								I,W
			CULG				2126	2127	2				IIIG
	2145	2400	MANI										
			CULG	2304	2306.5	1							IIIG
			CULG	2319	2320.5	1							IIIG
			CULG	2328.5	2332	1							IIIGG
			CULG	2331	2331.5	2	2331.5	2332	2				IIIG
15	0000	1000	MANI										
	0000	0732	CULG	0002.5	0003	1							I
			CULG				0024	0032					IIIN,W
			CULG	0045	0045.5	1							IIIG,RS
			CULG	0152	0153	2	0152.5	0153	1				IIIG
			CULG				0155.5	0156					IIIG,W
			CULG	0155	0157.5	1							IIIGG
	0459	0925	DURN										
			CULG				0606.5						IIIB,W
	0638	0722	WEIS										
			CULG				0722	0722.5	1				IIIG
			CULG	0727.5									IIIB,W

SOLAR RADIO EMISSION
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APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15	0943	1140	DURN	0952.8	0953.0	1	0952.8	0953.0	1				IIIG
			DURN				1024.9	1025.1	3				IIIG
			DURN				1031.9	1039.0	3				IIIGG
	0733	1414	WEIS				1034.8	1036.7	2				IIIG
			DURN				1056.7	1056.7	2				III
	1307	1159	DURN				1317.1	1317.6	3				IIIGG
			WEIS				1317.2	1317.4	2				IIIG
	1439	1733	WEIS										
			DURN	1515.1	1515.1	1	1515.1	1515.1	1				IIIG
	1007	2200	SGMR				2008.8	2014.3	3				V
			SGMR				2015.7	2026.2	3			II	
	2045	2400	CULG	2045	2400	1							IS
	2145	2400	MANI										
			CULG				2214	2232					IS,W
			CULG	2232	2242	1							IIIG,N
			CULG				2242						IIIB,W
			CULG	2327.5	2328	2							IIIG
			CULG				2327.5						IIIB,W
16	0000	0158	CULG	0000	0158	1							IS
	0000	0956	MANI										
			CULG	0037	0037.5	1							IIIG
			CULG				0052	0158					IIIN,W
			CULG	0151.5	0154	2	0153.5	0154	1				IIIGG
	0511	1352	WEIS				0513.0	0513.7	2				IIIG
			WEIS				0524.5	0533.4	2				IIIGG
			WEIS	0656.5	0658.5	2							IIIG
			WEIS				0742.5	0754.0	2				IIIGG
			WEIS				0938.0	0939.8	1				IIIG
	1055	1130	DURN										
			WEIS				1134.5	1136.0	1				IIIG
			WEIS				1151.0	1152.2	1				IIIG
			WEIS				1154.8	1200.4	3				IIIGG
			WEIS				1228.6	1229.9	1				IIIG
	1006	2200	SGMR				1228.8	1229.0	1				III
	1322	1759	DURN				1446.5	1446.8	1				IIIG
			DURN				1608.4	1609.2	3				IIIGG
	1401	1734	WEIS				1608.5	1609.5	1				IIIG
			DURN				1648.3	1654.1	3				IIIGG
			SGMR				1650.3	1651.3	2				IIIG
			DURN				1756.7	1756.9	2				IIIG
	2130	2400	CULG	2130	2400								IS,W
			CULG	2145	2147.5	2	2145	2147.5	2				IIIGG,V
			SGMR				2146.3	2146.8	1				IIIG
	2150	2400	MANI										
			CULG				2156.5	2157	1				IIIG
			CULG	2232		1							IIIB
			CULG				2232						IIIB,W
			CULG				2249	2325					IS,W
			CULG	2256.5			2256.5						IIIB,W
			CULG	2259.5	2302	1							IIIGG
			CULG	2344	2348.5	2	2345	2348	2				IIIGG,V
17	0000	0732	CULG	0000	0015								IS,W
	0000	0950	MANI										
			CULG	0104	0732								IN,W
	0506	0532	DURN										
			CULG				0533	0614					IIIN,W
			CULG				0533	0533.5					RS,DP,W
			CULG				0608.5	0611.5	2				IIIGG
	0610	1140	DURN				1000	1050	1				I,DC
	1308	1800	DURN				1333.5	1334.2	1				IIIG
			DURN	1400.8	1400.9	1	1400.3	1400.4	1				IIIG
	0514	1736	WEIS				1416.6	1417.5	2				IIIG
			WEIS				1442.9	1443.0	2				IIIB
			WEIS				1610.5	1613.0	1				IIIG
			WEIS				1635.2	1640.5	2				IIIGG
	1005	2200	SGMR				1635.9	1955.0					IIIS
			DURN	1636.4	1637.0	2	1635.1	1640.5	3				IIIGG
			WEIS				1659.0	1700.0	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
17			CULG				2109.5	2110	2				IIIB
	2032	2400	CULG				2109	2116					IIIN,W
			CULG	2111.5	2112.5	1	2111.5	2112.5	1				IIIG
	2156	2400	MANI										
			CULG				2351						IIIB,W
			CULG				2353						IIIB,W
			CULG				2354	2354.5	1				IIIG
18	0000	1000	MANI										
	0000	0731	CULG				0007	0012.5	2				IIIGG
			CULG				0136	0137					IIIG,W
			CULG				0241						IIIB,W
			CULG				0306	0307					IIIG,W
	0512	1525	WEIS										
	0706	1040	DURN				0706 E	1040	1				I
	1053	1131	DURN										
	1312	1800	DURN				1406.4	1406.6	3				III
	1540	1839	WEIS										
	1003	2022	SGMR				1846.1	1846.5	2				V
	2115	2200	SGMR										
	2032	2400	CULG	2115	2115.5								I,W
			CULG				2131	2131.5	2				IIIG
			CULG				2140	2202					IIIS,W
	2150	2400	MANI										
			CULG				2200.5	2201	1				IIIG
19	0000	0044	MANI										
	0000	0732	CULG				0017	0017.5					IIIG,W
			CULG				0147.5	0150.5					IIIG,W
			CULG				0148	0148.5	1				IIIG
			CULG				0155	0156					IIIG,W
	0203	0955	MANI										
			CULG				0552.5	0553					IIIG,W
			CULG	0555	0732								IN,W
	0710	1740	WEIS										
	1001	2200	SGMR										
	1044	1135	DURN										
	1322	1409	DURN										
	2145	2400	MANI										
	2032	2400	CULG	2227			2227						IIIB,W
			CULG				2357.5						IIIB,W
			CULG				2358.5						IIIB,W
20	0000	0731	CULG										
	0000	0202	MANI										
	0501	1229	WEIS										
	0547	0959	MANI										
	1000	2200	SGMR										
	1238	1741	WEIS										
	2031	2400	CULG				2106	2106.5					IIIG,W
	2145	2400	MANI										
			CULG	2251	2252.5		2245	2256					IIIS,W
21	0000	1000	MANI										
	0000	0724	CULG	0311.5	0312	1							IIIG
	0514	0600	WEIS										
	0613	0635	WEIS										
	0642	0738	WEIS										
			CULG	0722			0722						IIIB,W
	0805	1014	WEIS										
	0930	1145	DURN										
	1000	2200	SGMR										
	1245	1743	WEIS										
	1252	1331	DURN										
	1348	1800	DURN				1348 E	1500	1				I
	2033	2400	CULG				2042.5	2043.5	1				IIIG,U
			CULG				2125.5						IIIB,W
			CULG	2128	2400								IS,W
			CULG	2137		1							IIIB
	2141	2400	MANI										

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DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
21			CULG	2203.5	2204.5	2							IIIG
			CULG	2234	2234.5	1							IIIG
			CULG				2241.5	2242	2				IIIG
			CULG				2251	2251.5					IIIG,W
22	0000	0730	CULG	0000	0448								IS,W
	0000	0955	MANI										
			CULG				0049.5						IIIB,W
			CULG				0443.5	0444	2				IIIG
			CULG				0446	0447	2				IIIG
			CULG	0448	0540	1							IS
	0501	0521	DURN										
	0500	0720	WEIS				0521.3	0522.3	1				IIIG
			CULG				0521	0522	1				IIIG
			CULG				0527.5	0528	1				IIIG
			WEIS				0527.5	0529.0	1				IIIG
			CULG	0528.5	0532	1							IIIGG
			CULG				0528	0641					IIIN,W
			CULG	0532	0730								IS,W
			WEIS				0558.2	0558.4	1				IIIG
			WEIS				0614.7	0615.0	1				IIIB
			CULG				0617.5	0618	2				IIIG
			WEIS				0617.7	0618.1	2				IIIG
	0528	1130	DURN				0617.7	0618.1	2				IIIG
			DURN				0630	1130 D	1				I
			WEIS				0632.2	0633.7	1				IIIG
	0928	1745	WEIS				0950.5	1011.0	2				IIIGG
			WEIS				1104.3	1104.5	1				IIIB
			WEIS				1110.5	1110.7	1				IIIB
			WEIS				1208.1	1208.9	2				IIIG
	0956	2200	SGMR				1208.2	1208.6	2				IIIS
	1237	1759	DURN				1237 E	1759 D	1				I
			WEIS				1726.0	1726.2	1				IIIB
	2031	2400	CULG	2031	2330	1							IS
			SGMR				2039.5	2039.8	2				III
	2141	2400	MANI										
			CULG				2141	2141.5	3				IIIG
			CULG				2211	2357					IIIN,W
			CULG				2231.5	2233	1				IIIG
			CULG				2305.5	2316	1				IIIS
			CULG				2311.5	2313.5	2				II POSSIBLE
			CULG	2330	2400								IS,W
23	0000	0730	CULG	0000	0259								IS,W
	0000	1000	MANI										
			CULG				0134	0144					IN,W
			CULG				0144	0158	1				UNCLFSLOWD
			CULG				0148	0204					IVW POSSIBLE
			CULG				0155.5	0201	1				II POSSIBLE
			CULG	0159	0200	1	0159	0200	1				IIIG
			CULG	0259	0653								IN,W
			CULG				0443	0443.5					IIIG,W
	0448	1135	DURN				0446 E	1135 D	1				I,OC
			CULG	0653	0720	1							IS
			DURN	0659.3	0659.4	3							IIIG
			CULG				0659.5						IIIB,W
			CULG	0659	0659.5	2							IIIG
	0455	1718	WEIS				1218.7	1219.4	1				IIIG
	1237	1255	DURN				1237 E	1255 D	1				I
			DURN				1240.0	1240.2	2				IIIG
			WEIS				1240.0	1241.4	2				IIIGG
	0955	2200	SGMR				1240.2	1246.5	2				IIIG
			WEIS				1244.7	1245.0	1				IIIG
			WEIS				1246.3	1246.5	1				IIIG
	1322	1800	DURN				1322 E	1800 D	1				I
			WEIS				1447.7	1509.0	1				IIIGG
			SGMR				1447.9	1454.1	1				IIIG
	2031	2400	CULG	2031	2400	1							IS
	2148	2400	MANI										
			CULG				2241.5	2242.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24	0000	0730	CULG	0000	0730	1							IS
	0000	0957	MANI										
	0448	1135	DURN				0448 E	1135 D	2				I
			CULG	0533.5	0534	2	0533.5	0534.5	2				IIIG,U
			DURN	0533.6	0534.1	2	0533.6	0534.1	3				IIIG
			CULG				0626.5	0627.5					IIIG,W
			CULG	0626	0626.5	1							IIIG
	0953	2200	SGMR										
	1242	1800	DURN				1242 E	1800 D	2				I
			WEIS				1351.0	1736.0	1				IS
	1350	1743	WEIS				1543.5	1543.7	1				IIIB
	2030	2400	CULG	2030	2400	2							IS
			CULG				2039	2400					IS,W
			CULG				2044	2400					IIIS,W
	2140	2400	MANI										
			CULG				2333		1				IIIB
25	0000	0730	CULG				0000	0302					IS,W
			CULG	0000	0730	2							IS
	0000	1001	MANI										
			CULG				0008	0009	1				I
			CULG				0020	0302					IIIN,W
			CULG	0213	0213.5	2	0213	0213.5	1				IIIG
			CULG	0215.5	0216	2							IIIG
			CULG				0302	0505					IIIS,W
			CULG				0302	0730	2				IS,DC
			CULG				0413.5	0414	2				IIIG
			CULG				0438		1				IIIB
	0457	1125	DURN				0457 E	1125 D	3				I,DC
	0451	1113	WEIS				0500.3	1712.3	2				IN,DC
			CULG				0505	0730					IIIN,W
			WEIS				0602.3	1729.0	1				IIIN
			WEIS				0646.8	0647.5	2				IIIG
			CULG				0647	0647.5	2				IIIG
			CULG				0713		2				IIIB,U
			CULG				0723	0724	1				IIIG
			DURN				0828.7	0828.8	3				IIIG
			DURN	0913.8	0913.8	2							IIIG
	1232	1400	DURN				1232 E	1400 D	3				I,DC
	0952	2200	SGMR				1553.3	1553.8	2				IIIG
	1130	1749	WEIS				1553.3	1555.6	2				IIIG
			WEIS				1607.6	1609.0	2				IIIG
			WEIS				1612.7	1613.0	1				IIIG
			WEIS				1641.8	1642.5	1				IIIG
			SGMR				1955.2	1959.1	3				V
	2030	2400	CULG	2030	2316	1							IS
			CULG	2045.5		1	2045.5		1				IIIB
			CULG	2130.5	2131.5	1							IIIG
			CULG				2130.5	2154					IS,W
			CULG	2134.5	2141	2	2134	2141.5	2				IIIGG,V
			SGMR				2136.8	2142.0	2				IIIG
			CULG				2137.5	2141	1				RS,DP
			CULG				2142	2400					IIIN,W
			CULG	2145.5	2146	1							IIIG
	2146	2400	MANI										
			CULG				2151.5		1				IIIB
			CULG				2154	2400	1				IS
			CULG				2227		1				IIIB
			CULG				2228.5		1				IIIB
			CULG	2253		1							IIIB
			CULG	2316	2400	2							IS
26	0000	0655	CULG	0000	0655	2	0000	0106	1				IS
			CULG				0000	0655					IIIN,W
			CULG				0017		1				IIIB
			CULG				0106	0655					IN,W
			CULG				0155.5		1				IIIB
			CULG				0211		2				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
26			CULG				0214.5	0215	2				IIIB
			CULG				0214	0217	1				IIIG
			CULG				0216.5	0217	1				IIIB
			CULG				0243.5	0249	1				IIIB
			CULG				0305.5	0307	3	0306	0307	2	IIIG,V
	0000	0950	MANI							0306.0	0306.6	1	III
			CULG				0311	0312	1				I
			CULG				0533	0533.5	2				IIIG
			CULG				0545	0547.5	2				IIIG
			CULG				0551		1				IIIB
			CULG				0554	0554.5	2				IIIG
	0643	1126	DURN				0643 E	1126 D	3				I,DC
			CULG				0649.5		1				IIIB
			CULG				0651		1				IIIB
	0736	1749	WEIS				0749.0	1726.0	2				IS,DC
			WEIS				0926.8	0927.1	1				IIIB
			WEIS				1000.5	1001.3	1				IIIG
			WEIS				1025.3	1027.3	3				IIIG,V
			DURN				1025.8	1026.6	3				IIIGG
	0951	2200	SGMR				1025.8	1026.8	2				V
			WEIS				1050.3	1058.8	2				IIIG
			WEIS				1250.2	1250.3	1				IIIB
	1301	1800	DURN				1301 E	1800	3				I,DC
			WEIS				1340.9	1341.1	1				IIIB
			WEIS				1349.2	1349.5	1				IIIG
			WEIS				1516.2	1516.5	1				IIIG
			WEIS				1522.9	1523.6	3				IIIG
			DURN	1536.4	1536.7	1	1536.7	1536.7	2				IIIG
			WEIS				1605.1	1605.5	2				IIIB
			SGMR				1625.1	1625.4	1				III
			SGMR				2015.0	2035.4	2				II
			SGMR				2028.0	2200.0D	1				CONT
	2030	2400	CULG				2030	2400	2				IS,C,DC
			CULG	2030	2400	1							IS,C
	2146	2400	MANI										
			CULG				2204	2400	1				IIIS
			CULG				2204	2400	2				IIIS,N
			CULG	2301		2	2301		2				IIIB
			CULG	2304.5		2							IIIB
			CULG	2325.5	2326	2	2325.5	2326	3				IIIG
27			CULG				0000	0337	2				IS,C,DC
			CULG	0000	0230	1							IS,C
	0000	0730	CULG				0000	0112	2				IIIS
			CULG				0020	0021	2				IIIG
			CULG	0029	0031	1							IIIG
			CULG	0033	0034	1							IIIG
			CULG				0112	0146	1				IIIS
			CULG	0117	0118	1							IIIGG
			CULG				0146	0641					IIIN,W
			CULG	0156	0158.5	1	0156.5	0158	1				IIIGG
			CULG	0159	0200	2	0159	0200	2				IIIG
			CULG	0230	0422	1							IS
			CULG	0334.5	0335.5	1	0334.5	0336	2	0335	0335.5	1	IIIG
			CULG				0337		1				IIIB
			CULG				0337	0645	1				IS
			CULG				0416.5		1				IIIB
			CULG	0422	0645								IS,W
			CULG	0423	0643	1							IIIN
	0453	0501	DURN				0500.6	0500.8	3				IIIG
	0545	0853	WEIS				0505.0	1650.0	2				IN
	0528	0541	DURN				0529	0541 D	1				I,DC
			DURN				0530.1	0530.4	3				IIIG
			CULG	0532.5	0533.5	2	0532.5	0533.5	2				IIIG
			DURN				0532.6	0533.5	3				IIIGG
			DURN				0536.1	0540.8	3				IIIGG
			CULG				0538	0542.5	2				IIIG,V
	0549	1137	DURN				0549 E	1137 D	1				I,DC
			CULG				0554.5	0555	1				IIIG
			WEIS				0600.6	0600.7	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
27			WEIS				0630.2	0630.4	2				IIIG
			WEIS				0632.6	0633.7	3				IIIGG
			WEIS				0636.2	0642.2	2				IIIGG
			DURN	0639.1	0640.8	3							IIIGG,RS
			DURN				0644.5	0653	3				II
			CULG	0644.5	0646	1	0645	0708	3				II HARMONIC
			CULG	0644.5	0725	2	0645	0725	1				IV POSSIBLE
			WEIS				0644.9	0713.0	3				II HARMONIC
			WEIS				0645.5	0651.1	2				IIIG
			DURN	0645	0653	1							DCIM
			CULG	0645	0725	1	0645	0725	1				IS
			DURN	0646.1	0650.2	2							IIIG
	0858	1650	WEIS				0648.0	1515.3	1				IIIN
	0000	1000	MANI							0651.8	0657.2	1	IIIG
	0725	1434	DWIN	0808.9	0810.4	2							IIIG,SPIKE
			DURN				0814.4	0814.6	3				IIIG
			DURN				0830.7	0830.8	3				III
			WEIS				1003.0	1004.1	2				IIIG
			DURN				1006.1	1006.1	2				III
			DWIN	1009.5	1013.5	2							IIIG
			DURN				1012.9	1023.4	3				IIIG,N
			DWIN	1018.5	1018.7	1							IIIG
	0949	2200	SGMR				1207.5	1208.3	2				V
			SGMR				1243.1	1252.3	2				IIIG
	1302	1316	DURN	1307.7	1307.9	2	1307.7	1313.0	3				IIIG,N
			DWIN	1307.7	1308.4	2							IIIG
			WEIS				1307.7	1312.7	2				IIIG
			DWIN	1311.2	1311.7	2							UNCL,SPIKE
			DWIN	1312.6	1313.6	2							UNCL,SPIKE
			DWIN	1322.0		1							IIIB
	1322	1800	DURN				1322.0	1322.1	1				III
			DURN				1322.9	1322.9	3				IIIG
			DWIN	1322.9	1323.0	1							IIIG
			DURN				1326	1800	2				I,DC
			SGMR				1511.8	1515.5	2				IIIG
			DURN	1632.4	1632.7	3	1631.6	1635.3	3				IIIG
			DURN	1751.8	1751.8	3	1751.8	1751.8	3				III
	2030	2400	CULG				2041	2044	1				I
			CULG	2043	2400	1							IS
			CULG				2048	2326					IIIN,W
	2144	2400	MANI										
			CULG				2202.5		2				IIIB
			CULG				2227.5		1				IIIB
			CULG				2233		1				IIIB
			CULG				2323	2323.5	2				IIIG
			CULG	2343	2343.5	1							IIIG
28	0000	0730	CULG	0000	0730								IS,W
	0000	1000	MANI										
			CULG				0014	0136					IIIS,W
			CULG				0035	0120	1				IS
			CULG				0120	0730					IS,W
			CULG	0129.5	0131	1							IIIG
			CULG				0136	0730					IIIN,W
			CULG				0244.5		1				IIIB
			CULG				0322	0322.5	1				IIIG
			CULG	0441	0443	1							IIIG
	0447	1537	WEIS				0451.2	1525.3	2				IIIN
	0453	0457	DURN				0453 E	0457	1				I,DC
	1544	1752	WEIS				0455.7	1047.4	2				IN,DC
	0523	1126	DURN				0523 E	1126 D	1				I,DC
			CULG				0557.5		2				IIIB
	1308	1800	DURN				1308 E	1800	1				I
			WEIS				1517.3	1517.5	2				IIIG
			WEIS				1609.1	1614.5	2				IIIGG
	0948	2200	SGMR				1609.8	1619.7	2				IIIG
			WEIS				1618.8	1619.4	2				IIIG
			WEIS				1624.4	1624.8	2				IIIG
			WEIS				1631.3	1631.4	1				IIIB
			WEIS				1633.7	1634.4	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
28			WEIS				1636.4	1636.5	1				IIIB
			DURN	1644.4	1644.7	2							IIIG
			WEIS				1710.7	1710.9	2				IIIB
			SGMR				1738.8	1740.1	2				IIIG
			WEIS				1739.6	1740.5	1				IIIG
			WEIS				1743.6	1744.0	1				IIIG
			SGMR				1902.7	1903.7	3				V
			SGMR				1903.7	1908.4	2				III
			SGMR				2030.8	2032.7	3				IIIG
	2030	2400	CULG				2032	2033					UNCLF
			CULG	2035	2133								IS,W
			CULG				2039	2400					IIIN,W
			SGMR				2044.4	2045.0	2				V
			CULG	2044.5	2045.5	1	2044.5	2045.5	2				IIIG
	2134	2400	MANI										
			CULG				2157		1				IIIB
			CULG	2245	2400								IN,W
			CULG	2312	2313	1							IIIG
			CULG				2343.5		1				IIIB
			CULG				2351		2				IIIB
29	0000	0730	CULG	0000	0629		0000	0730					IS,W
			CULG				0001	0730					IIIN,W
			CULG	0007	0713	1							IIIG,N
			CULG	0032		1	0032		1				IIIB
			CULG	0034.5	0035	1	0035		1				IIIB
			CULG				0045	0100	1				N,DC
			CULG				0116.5	0117.5	2	0117	0117.5	1	IIIG
			CULG	0124.5	0125	1	0124.5		1				IIIG
			CULG				0133	0133.5	2	0133		1	IIIG
			CULG				0136		1				IIIB
			CULG	0140.5	0141.5	2							IIIG,RS
			CULG				0150	0151	1				IIIG
			CULG	0207	0207.5	1							IIIG
			CULG	0239	0730	1							IIIG,N
			CULG				0239	0239.5	1				IIIG
			CULG				0310	0310.5	1				IIIG
			CULG				0316.5	0317	2				IIIG
			CULG	0322.5	0325.5	1	0322.5	0324.5	2				IIIGG
	0446	1753	WEIS				0452.5	1726.7	2				IIIN
			WEIS				0459.5	1619.5	1				IN
			CULG	0511.5	0512.5	2							IIIG,RS
			CULG				0537.5	0538	2				IIIG
	0544	1126	DURN				0544 E	1126	1				I,DC
			DURN				0551.7	0554.0	3				IIIGG
			CULG	0558	0558.5	2	0558	0558.5	1				IIIG
			DURN				0559.6	0600.6	2				IIIG
			CULG				0606		1				IIIB
			DURN	0731.2	0735.2	3	0731.2	0735.2	3				IIIGG
			WEIS				0731.3	0736.4	3				IIIGG,RS
			WEIS	0731.3	0735.0	1							CONT
			DURN	0732.3	0735.1	2							DCIM
			DURN				0732.7	0749.5	3				
	0000	1000	MANI							0732.8	0733.2	1	III
			WEIS				0740.2	0809.0	2			II	HARMONIC
			DURN				0753.8	0754.2	3				IIIG
	0946	2200	SGMR				1053.2	1053.8	1				V
			SGMR				1206.9	1330.9	2				IIIS
			DURN				1303 E	1800	1				I,DC
	1308	1800	DURN				1442.0	1442.2	1				IIIG
			SGMR				1508.5	1509.5	1				IIIG
			SGMR				1536.2	1536.3	1				III
			DURN				1544.8	1549.9	3				IIIGG
			DURN	1604.8	1613.8	3	1602.5	1613.8	3				IIIG,N
			SGMR				1609.4	1613.6	2				V
			SGMR				1641.2	1641.8	1				IIIG
			SGMR				1931.1	1931.5	3				V
	2030	2400	CULG	2035	2400								IS,W
			CULG				2039	2206	1				IIIS
	2140	2400	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1979

DAY	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS: DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
29			CULG				2206	2400					IIIN,W
			CULG				2233.5	2235.5	2				IIIGG,V
			CULG				2237		1				IIIB
			CULG				2305	2400	1				IS
			CULG				2317		2				RS,DP
			CULG				2347.5	2348	1				IIIG
			CULG	2351.5	2354	1	2351.5	2354	2				IIIGG,V
30			CULG	0000	0053	1							IS
	0000	0730	CULG				0000	0040					IIIS,W
			CULG				0003	0730					IS,W
			CULG				0018	0019	1				IIIG
			CULG				0023.5						DP,W
			CULG				0040	0730					IIIN,W
			CULG	0053	0730								IN,W
			CULG				0121.5	0122	1				IIIG
			CULG				0158.5	0159	1				IIIG,U
			CULG	0222	0223	1							IIIG
			CULG				0353.5	0355	3				IIIG,V
	0000	1000	MANI							0353.5	0354.6	1	IIIG
			CULG				0406.5	0407.5	1				IIIG
	0449	1115	DURN				0449 E	1115 D	1				I,DC
	0545	0755	WEIS				0453.6	0454.5	1				IIIG
			WEIS				0521.5	0524.5	3				IIIG/V
			MANI							0522.0	0523.7	1	III
			CULG	0522	0523	1	0522	0524.5	3				IIIG,V,U
			WEIS				0541.3	0549.3	2				IIIGG
			CULG				0544.5	0546	2				IIIG
			WEIS	0613.4	0613.9	1							IIIG
			CULG	0613	0614	2							FAST DRIFT
			WEIS				0724.6	0726.6	3				IIIG
			CULG				0725		1				IIIB
	0944	2200	SGMR				1223.9	1224.1	1				III
	1323	1800	DURN				1323	1800	1				I
			DURN	1645.4	1645.6	3	1645.4	1645.8	3				IIIG
			DURN	1657.7	1658.1	3	1657.7	1658.1	3				IIIGG
	2030	2400	CULG	2037	2145								IN,W
			CULG				2040	2120					IIIS,W
			CULG				2048	2204					IS,W
			CULG				2120	2254					IIIN,W
	2142	2400	MANI										
			CULG	2145	2211	1							IS
			CULG	2200.5	2201.5	2							IIIG
			CULG	2211	2400								IN,W
			CULG	2223	2223.5	2							IIIG
			CULG	2224	2225.5	2							IIIG
			CULG	2233	2233.5	1							IIIG

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES
(Neutron Monitors)

APRIL 1979

Apr. 1979	THULE Average cts/hr	ALERT Average cts/hr	DEEP RIVER Average cts/hr	CALGARY Average cts/hr	KIEL Average cts/hr	CLIMAX Average cts/hr	TOKYO Average cts/hr	KULA Average cts/hr	HUANCAYO Average cts/hr
1		6943.9	6543.3		5933.2	3930.0	3599.2		
2		6942.0	6549.5		5945.4	3955.0	3597.6		
3		6896.0	6508.1		5928.2	3906.6	3586.8		
4		6823.0	6442.8		5868.2	3902.8	3575.7		
5		6717.0	6356.8		5748.6	3791.6	3541.2		
6		6650.2	6335.6		5724.4	3747.5	3517.4		
7		6764.8	6386.2		5746.3	3779.1	3533.8		
8		6804.9	6434.0		5807.2	3813.8	3541.0		
9		6823.6	6443.7		5813.7	3825.0	3550.2		
10		6836.4	6470.8		5841.4	3864.7	3566.0		
11		6947.6	6543.8		5905.1	3914.2	3583.0		
12		6960.5	6599.0		5950.7	3958.1	3579.8		
13		6972.7	6593.1		5942.3	3945.6	3571.3		
14		7022.1	6639.0		5967.6	3956.2	3577.4		
15		7020.0	6630.4		5947.5	3952.0	3589.5		
16		7031.8	6642.8		5985.8	3958.8	3605.9		
17		7036.0	6649.8		5982.3	3957.0	3610.9		
18		7012.4	6658.9		5965.1	3962.5	3609.5		
19		6996.8	6607.8		5940.8	3916.2	3607.5		
20		7036.6	6621.0		5968.3	3927.0	3604.4		
21		7039.3	6616.7		5987.0	3933.5	3614.8		
22		6944.3	6527.0		5935.6	3910.4	3589.0		
23		6893.2	6507.7		5908.8	3879.4	3574.5		
24		6904.3	6520.2		5907.8	3887.7	3571.2		
25		6712.0	6337.0		5749.0	3801.9	3541.8		
26		6644.3	6269.1		5676.8	3763.6	3533.5		
27		6767.9	6381.2		5780.3	3811.5	3541.1		
28		6816.5	6448.0		5827.0	3855.5	3566.1		
29		6878.6(22)	6499.6		5886.4	3894.8	3577.6		
30		----	6564.0		5928.0	3927.9	3584.9		
31									
MEAN		6890.9	6510.9		5883.3	3887.4	3574.6		

Data not available at time of publication.

Data not available at time of publication.

Data not available at time of publication.

Data not available at time of publication.

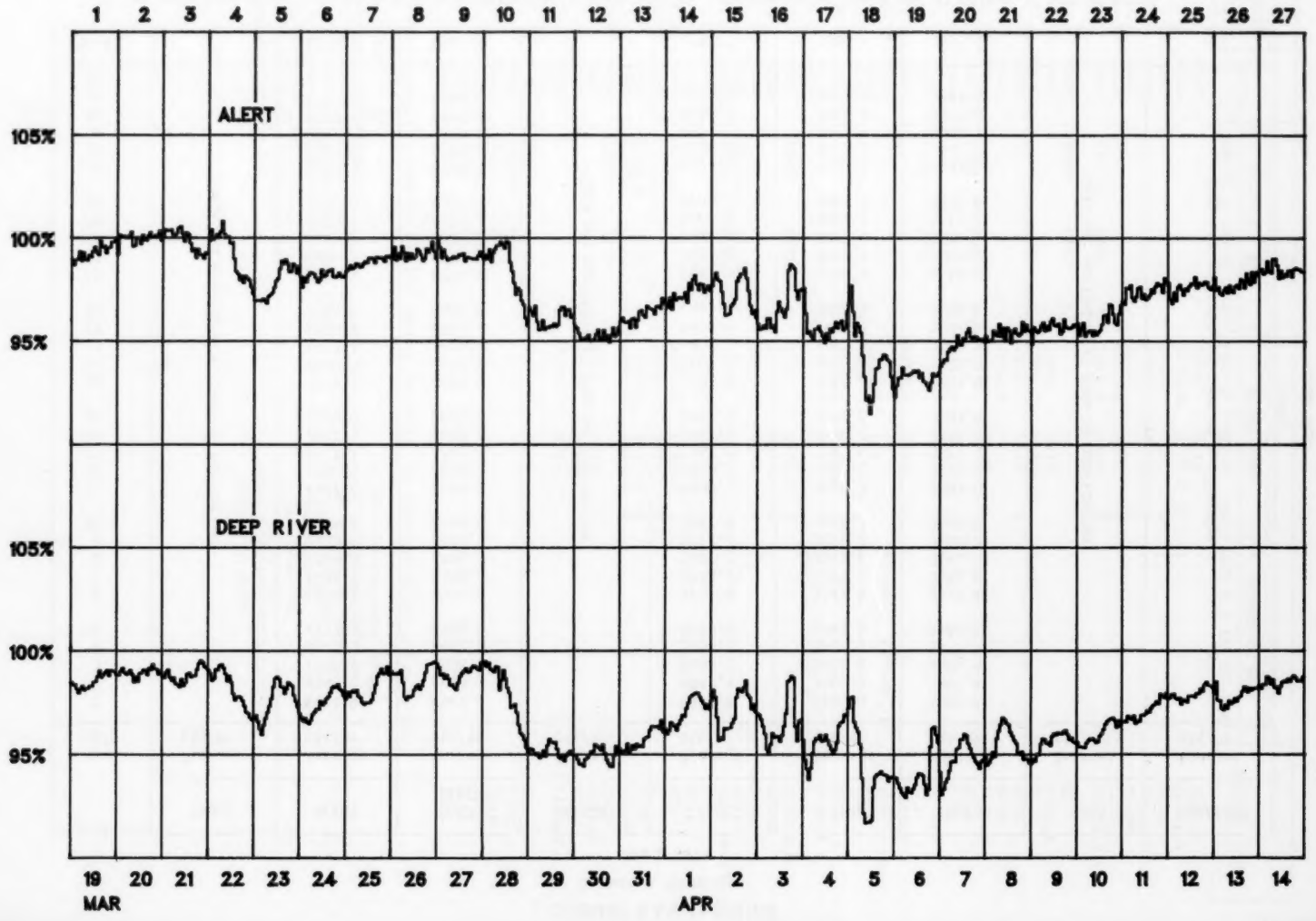
( ) is the number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Scaling Factors: 100 for Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula; 300 for Deep River; 256 for Tokyo.

NOTE: SULPHUR MOUNTAIN STATION CLOSED AUGUST 1978.

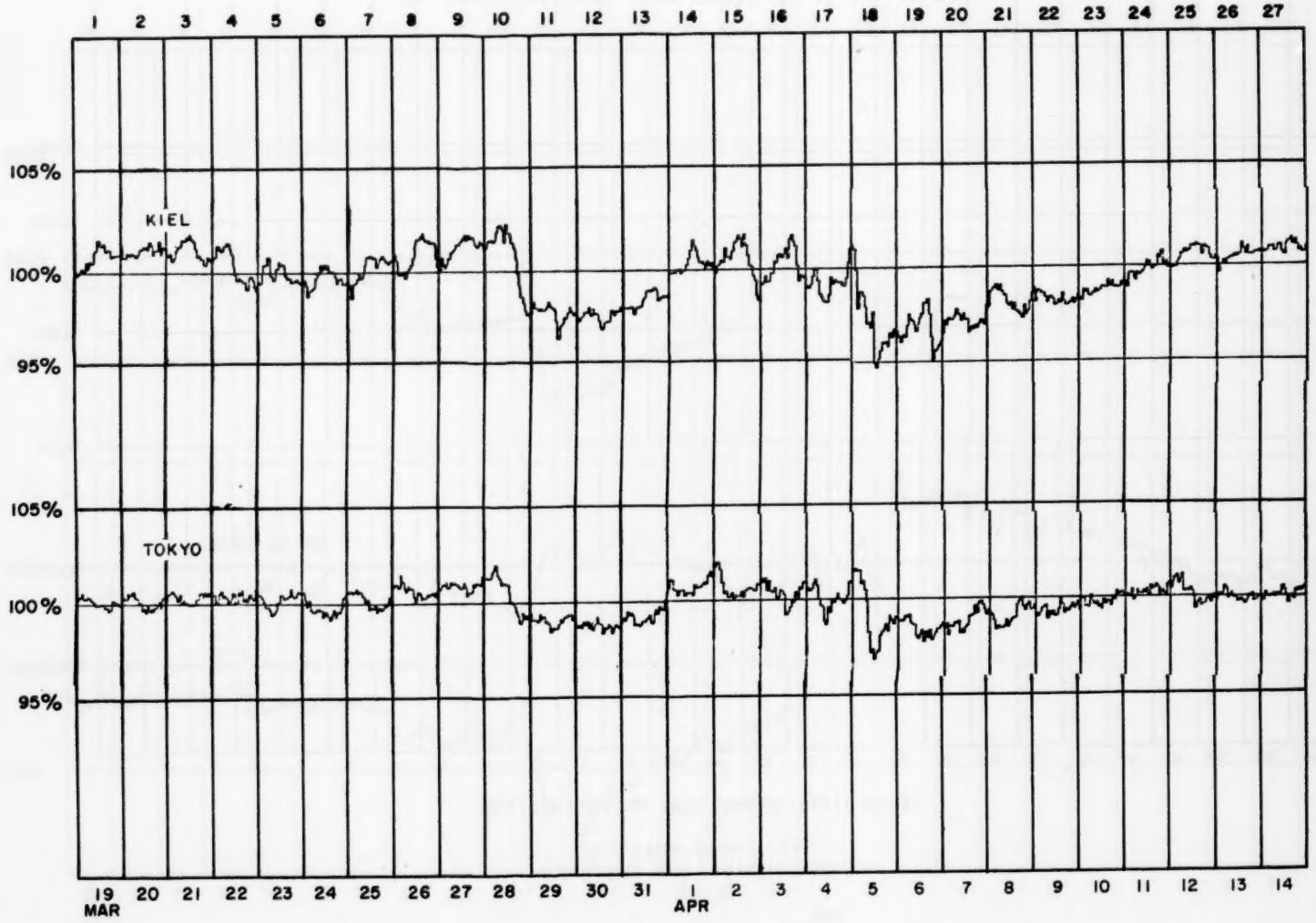
COSMIC RAY INDICES
(Neutron Monitor)

Bartels Rotation 1991 (March 1979–April 1979)



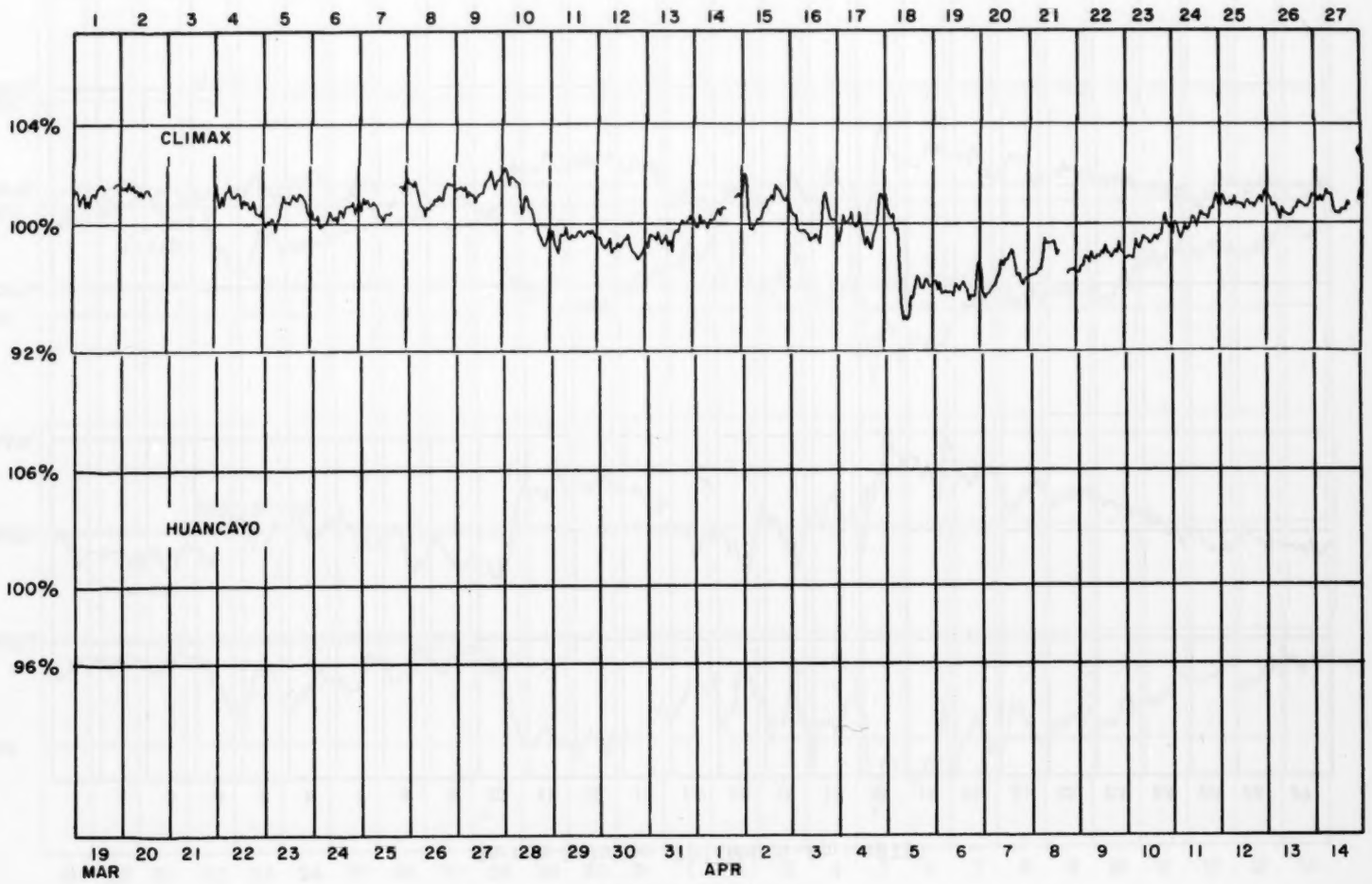
COSMIC RAY INDICES
(Neutron Monitors)

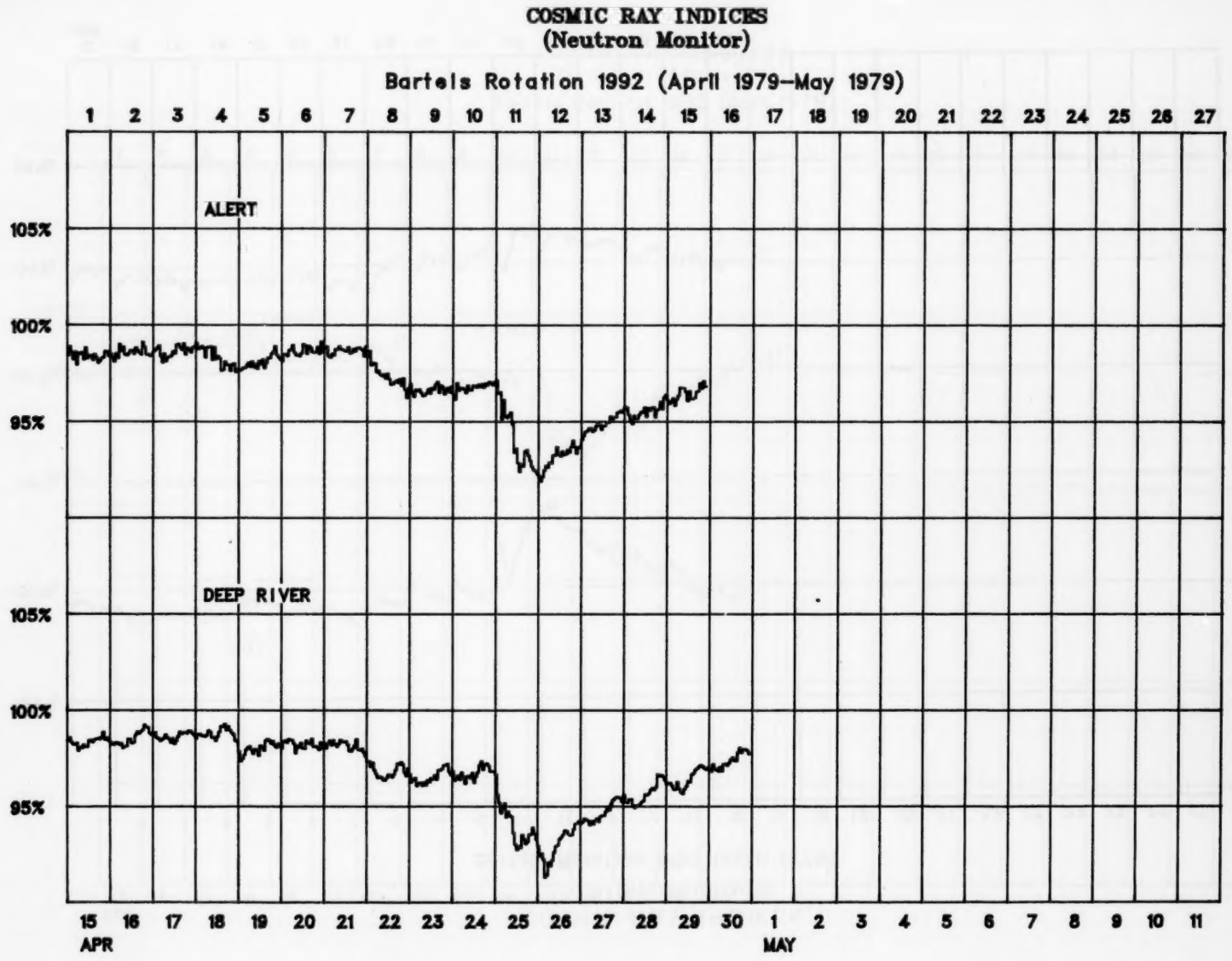
Bartels Rotation 1991 (March-April 1979)



COSMIC RAY INDICES
(Neutron Monitors)

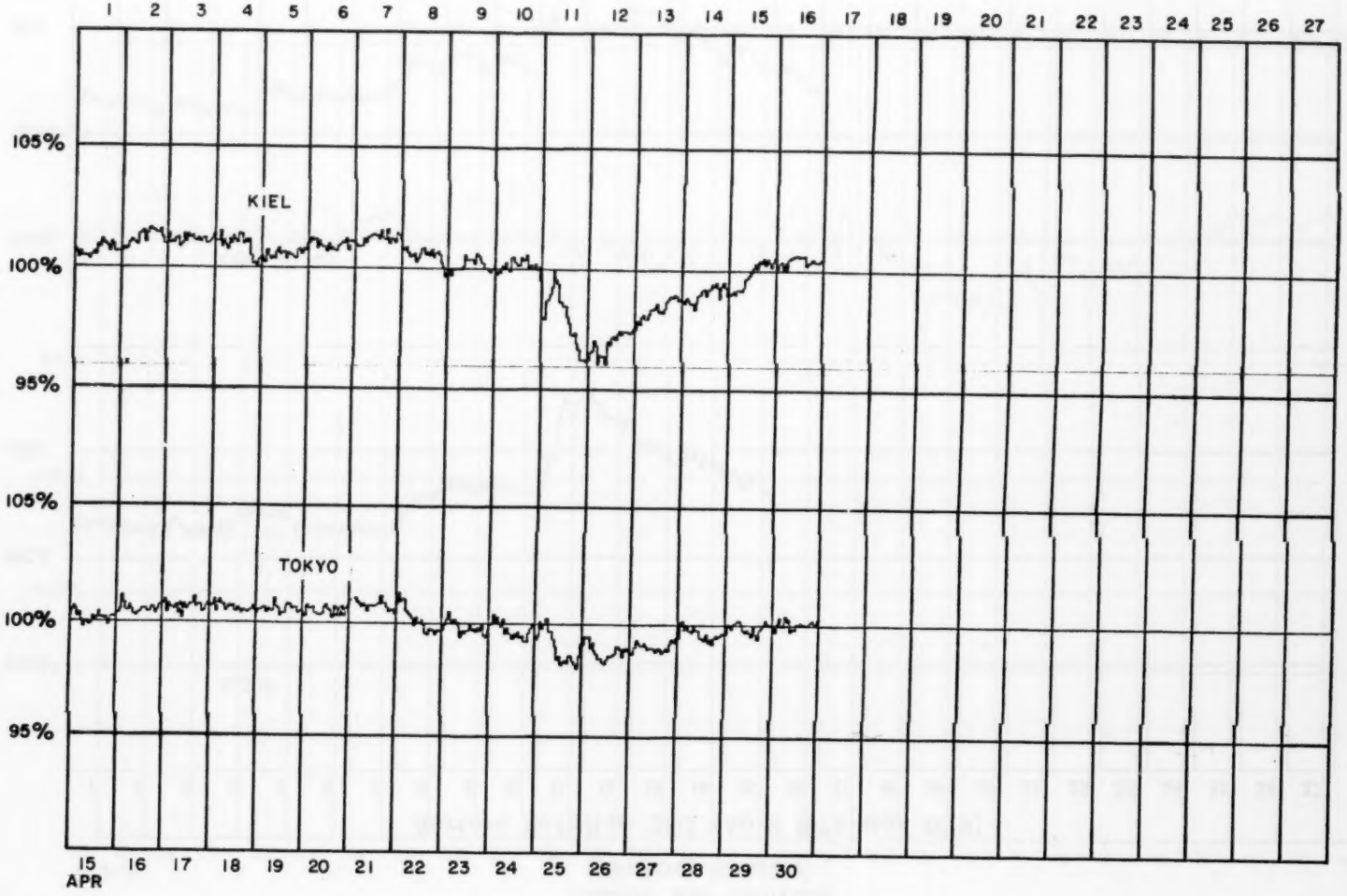
Bartels Rotation 1991 (March-April 1979)




COSMIC RAY INDICES
(Neutron Monitor)
Bartels Rotation 1992 (April 1979–May 1979)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
ALERT
105%
100%
95%
DEEP RIVER
105%
100%
95%
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11
APR
MAY

COSMIC RAY INDICES
(Neutron Monitors)

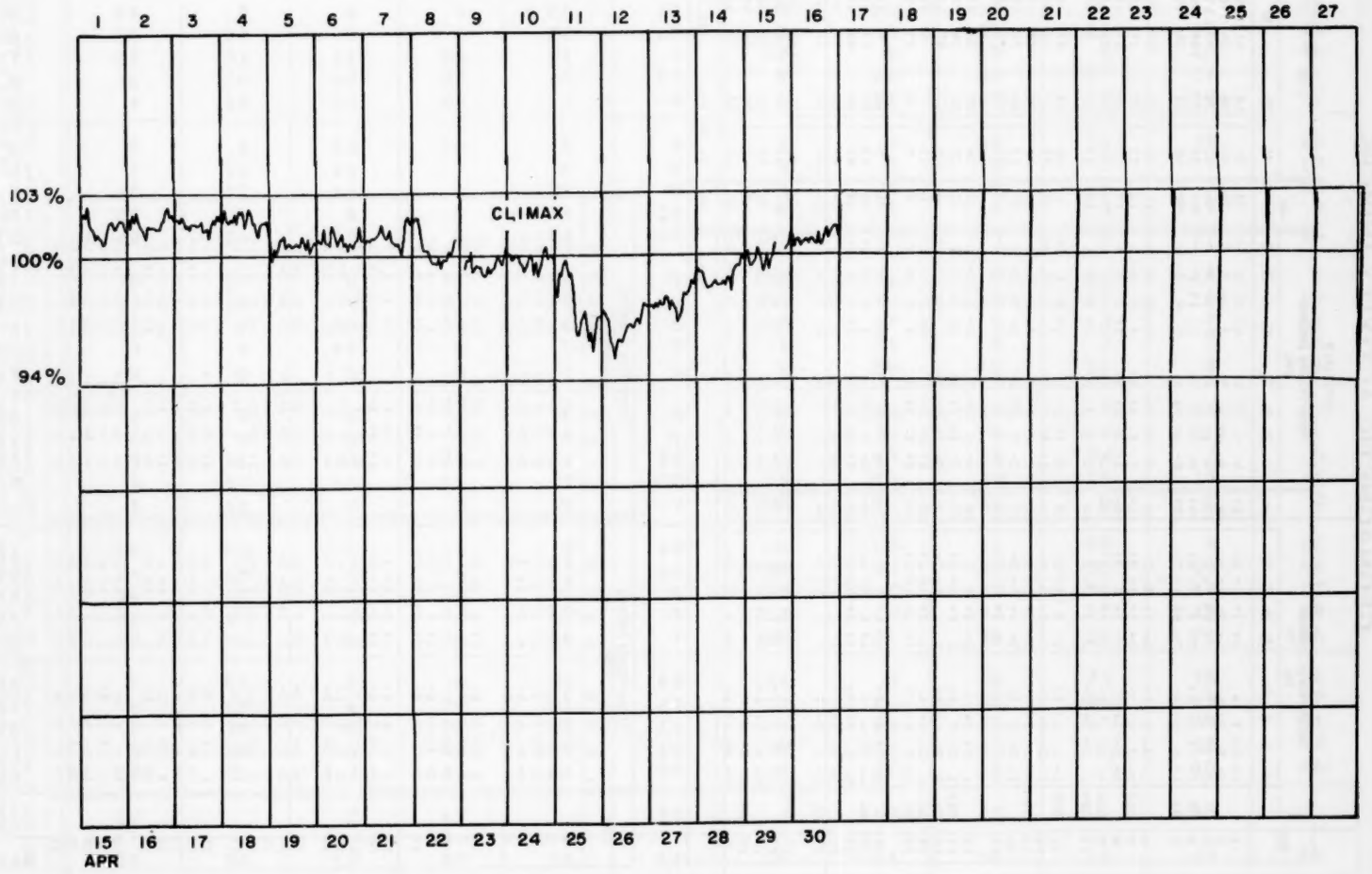
Bartels Rotation 1992 (April 1979)



APR

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1992 (April 1979)



GEOMAGNETIC ACTIVITY INDICES

APRIL 1979

Day		Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M			
1		4+	5-	3	4	4+	3+	2+	6+	32+	4	4	3-	4	4-	3+	2	5+	33	34	46	41	39		1.3
2		6+	5	3+	4-	4-	5-	4-	4-	34	6	4+	3	3	3	4+	3	3	36	59	56	56	58		1.4
3		3	2+	3-	3-	3-	5+	7-	8	33+	3	2+	3	3-	2+	5-	6-	7-	54	32	31	45	19		1.6
4	D5	7-	6+	5+	5+	5-	2	2-	2+	34+	6-	5+	5	5-	5-	1+	2-	2-	47	88	93	100	81		1.5
5	D2	4+	4	5-	6	7-	6+	4-	3-	38+	5-	4+	4+	5	5	5	3	3	52	40	71	36	75		1.6
6		4-	3-	3	1+	3-	3+	2+	2	21	3	2+	2+	1	2-	2	2	2-	12	61	24	68	18		0.7
7	Q0A	2+	3	3	3-	2-	2+	2+	3+	21-	2	2	2+	3-	1	2	2-	3	12	22	15	17	21		0.7
8		3+	3-	2+	2	2-	2+	3	3+	21-	3-	3-	2+	2-	1+	2	3	3	12	19	16	17	19		0.7
9	Q6A	4	3+	1	1-	1+	2-	2-	1+	15	4-	3	2-	1	1	1-	1	1-	9	25	18	22	22		0.5
10	Q8A	1	3-	3+	2+	3	3	3-	2	20	1	3+	3	2	3-	2+	2	2	12	12	15	9	18	K	0.7
11	Q3K	1-	1	1+	1+	1+	3	1+	2	12	1-	1+	1	1	1+	2	1	1+	6	12	10	17	6	CK	0.3
12		2	3	3	3+	2+	3	3	4	24-	1+	3-	3-	3	2	2+	2+	3+	15	20	18	11	26		0.9
13	Q9A	2+	2+	2+	3-	3+	3+	2-	2+	20+	2	2	2	2-	3	3-	2-	2	11	25	16	28	14		0.6
14		2+	2+	2	3-	3-	4-	3-	5-	23	2-	2	2-	2	2-	3-	3-	4	15	18	14	21	12		0.9
15		4	3	2	3-	4+	3+	3-	3+	25+	4-	3	1	2+	3	3	2+	3-	18	34	19	35	20		1.0
16		4	5-	3+	3	2+	3-	2	1	23	4-	4	3-	2	2-	2	2-	1	16	34	25	32	27		0.9
17	Q5A	3	3-	3	2+	2	2-	3-	2+	20-	3-	2+	2+	3-	2-	1+	3-	2	11	17	16	14	20		0.6
18	Q4	2	2	1+	2+	1	1	1+	2-	13-	2-	1+	1+	2+	1	0+	1-	2-	6	16	13	17	13		0.3
19	Q2	1	2	2-	1	1	2+	1+	1+	12-	1+	2+	2-	1	0+	2	1-	1-	6	11	7	8	10	CC	0.2
20	Q1	1-	0	1-	0+	0+	1-	1-	0+	4-	0+	0	0+	0	0	0	0+	0+	2	9	6	12	3	CC	0.0
21		1	2-	2+	3-	4	4+	4	5	25	1-	2-	2	2+	4-	3+	4-	5-	21	8	10	4	13	C	1.1
22	D4	6-	6-	4	5	4+	5	5-	4+	39-	5-	4	3+	4	3	4	4+	4-	45	59	52	53	58		1.5
23		5	5	3+	3+	3+	3+	3-	2	28	5-	4+	3	3	3+	3	2	1+	23	52	39	48	43		1.1
24		3+	3+	3+	2+	2+	2	2-	4	22+	3+	3	3-	2	2	2+	2-	3	14	24	25	26	24		0.8
25	D1	8-	8	8-	7	7	5	6-	6-	54-	7-	6-	7-	6	6+	5-	4+	5	126	109	66	27	148		1.9
26	Q7A	4	2+	1	2	1	3-	3	3	19	4-	3-	1+	1+	1+	1+	2+	2+	12	51	66	103	15		0.7
27		3+	3+	3	3-	3+	5	5-	5	30+	4-	4-	2+	3	3	4-	4-	5-	27	26	17	18	26		1.2
28		5-	4	5+	4+	4-	3+	4	4	33+	4+	4-	4-	4-	3-	3-	3+	4-	31	45	50	48	48		1.3
29	D3	4	5+	5+	4+	4+	5+	5	6-	39+	4+	4	5-	4-	4-	4-	4+	5-	47	43	36	34	45		1.5
30		5+	4+	3+	4+	4+	3	3	3-	30+	5-	4	4-	4-	4-	2	3-	2-	26	66	52	75	43		1.2
																		Mean	25	35.7	31.4	33.8			0.96

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	3+	4-	3	4-	4-	3+	2+	5+	4	4	3-	4	4-	3+	2	5+
2	6-	5-	3	3	3+	4+	3+	3	6	4+	3	3	3	4+	3	3
3	3-	2-	3-	3-	3-	5-	6-	7-	3	2+	3	3-	2+	5-	6-	7-
4	6-	5	4+	4+	4	2-	1+	2	6-	5+	5	5-	5-	1+	2-	2-
5	4	4+	4+	5+	6	6	4-	3-	5-	4+	4+	5	5	5	3	3
6	3	2+	3-	2-	2+	3	3-	2+	3	2+	2+	1	2-	2	2	2-
7	2	3-	3-	3-	2	2+	2+	3	2	2	2+	3-	1	2	2-	3
8	3-	2+	2	2-	2-	2+	3	3+	3-	3-	2+	2-	1+	2	3	3
9	3+	3	1+	1-	1+	2	2	2-	4-	3	2-	1	1	1-	1	1-
10	1-	3	3	2+	2+	2+	3-	2+	1	3+	3	2	3-	2+	2	2
11	1	1	1+	1+	1+	3-	2-	2	1-	1+	1	1	1+	2	1	1+
12	2-	2+	3	3-	2+	3-	3-	4-	1+	3-	3-	3	2	2+	2+	3+
13	2	2-	3-	2	3	3-	2-	2	2	2	2	2-	3	3-	2-	2
14	2	2	2	2+	3-	3-	3	4+	2-	2	2-	2	2-	3-	3-	4
15	3+	3-	2-	3-	4-	3	3-	3+	4-	3	1	2+	3	3	2+	3-
16	4-	4-	3	3-	2+	2	3-	1	4-	4	3-	2	2-	2	2-	1
17	3-	2	3	3-	2	1+	3-	2-	3-	2+	2+	3-	2-	1+	3-	2
18	2-	2	1+	2+	1+	1	2-	2	2-	1+	1+	2+	1	0+	1-	2-
19	1	2+	2-	1+	1	2+	1	1+	1+	2+	2-	1	0+	2	1-	1-
20	1-	0	0+	0	0	0+	1-	1-	0+	0	0+	0	0	0	0+	0+
21	1	1+	3-	3-	4-	3+	4	4+	1-	2-	2	2+	4-	3+	4-	5-
22	5-	4	3+	4+	4-	4	4-	4-	5-	4	3+	4	3	4	4+	4-
23	4+	4	3+	3	3+	3	3-	2+	5-	4+	3	3	3+	3	2	1+
24	3	3-	3	3-	2+	2	1+	4	3+	3	3-	2	2	2+	2-	3
25	6+	7-	7	6+	6	4	4+	5-	7-	6-	7-	6	6+	5-	4+	5
26	3+	2	1+	2	1+	2+	3-	3-	4-	3-	1+	1+	1+	1+	2+	2+
27	3	3+	3+	3-	3	5-	4-	4	4-	4-	2+	3	3	4-	4-	5-
28	4+	4-	5-	4+	3+	3	3+	4-	4+	4-	4-	4-	3-	3-	3+	4-
29	3+	4+	5-	4	3+	5-	4	5-	4+	4	5-	4-	4-	4-	4+	5-
30	4+	4	3+	4	4-	3-	3-	3-	5-	4	4-	4-	4-	2	3-	2-

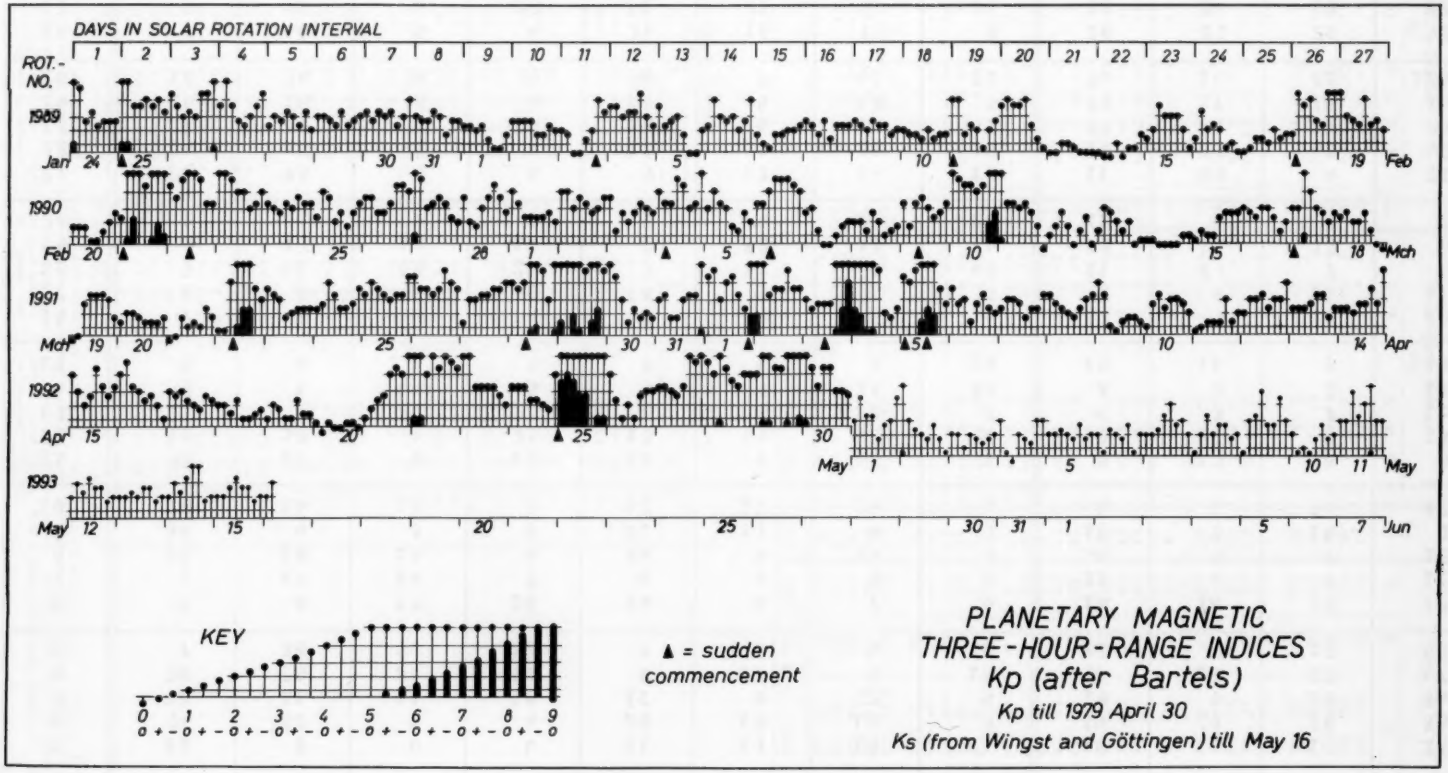
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap ≤6 but one Kp ≥3o or two Kp values ≥3-"). An * means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices (Kn), (Ks) and (Km) as in IAGA-Bulletin No. 32 and indices (aa), "antipodal", as in IAGA-Bulletin No. 33 prepared by P. N. Mayaud of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 12 UT.

DAILY AVERAGE INDICES Ap

	1978								1979			
DAY	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
1	88	9	6	4	21	13	13	11	10	6	12	33
2	94	82	5	4	20	12	10	3	19	10	20	36
3	83	31	11	16	11	8	12	5	19	9	13	54
4	96	26	80	30	8	17	5	12	45	19	27	47
5	7	38	53	22	7	8	6	10	23	9	13	52
6	5	8	13	16	14	4	2	5	18	16	30	12
7	7	11	14	7	6	4	9	2	32	6	7	12
8	16	10	14	6	24	5	14	3	8	9	7	12
9	85	4	8	5	31	11	8	3	15	9	15	9
10	10	24	10	6	12	15	16	1	4	6	54	12
11	30	17	6	11	12	5	10	1	4	12	18	6
12	18	10	4	21	13	14	53	4	10	17	6	15
13	11	7	20	13	6	8	22	7	5	3	7	11
14	9	4	48	6	5	5	11	28	8	2	3	15
15	5	6	6	3	3	5	8	28	15	11	8	18
16	7	6	6	4	6	4	6	14	12	7	11	16
17	8	9	6	9	8	5	6	9	7	5	21	11
18	5	11	18	24	3	32	5	48	11	22	7	6
19	4	17	11	11	2	22	13	24	19	15	11	6
20	8	11	5	3	5	9	22	26	12	6	6	2
21	26	33	6	6	9	13	16	12	11	59	4	21
22	24	15	8	6	12	10	28	19	14	33	45	45
23	24	18	8	4	11	6	12	7	27	31	12	23
24	26	19	6	4	10	5	18	6	23	17	15	14
25	10	24	8	9	36	7	60	21	34	14	21	126
26	7	46	5	4	36	18	33	8	28	22	26	12
27	5	15	4	29	51	23	17	14	23	24	18	27
28	7	12	6	124	50	14	5	14	13	17	39	31
29	8	32	4	40	109	16	4	20	13		68	47
30	18	31	3	31	11	25	5	27	16		16	26
31	12		2	45		20		18	13		19	
MEAN	25	20	13	17	18	12	15	13	16	15	19	25

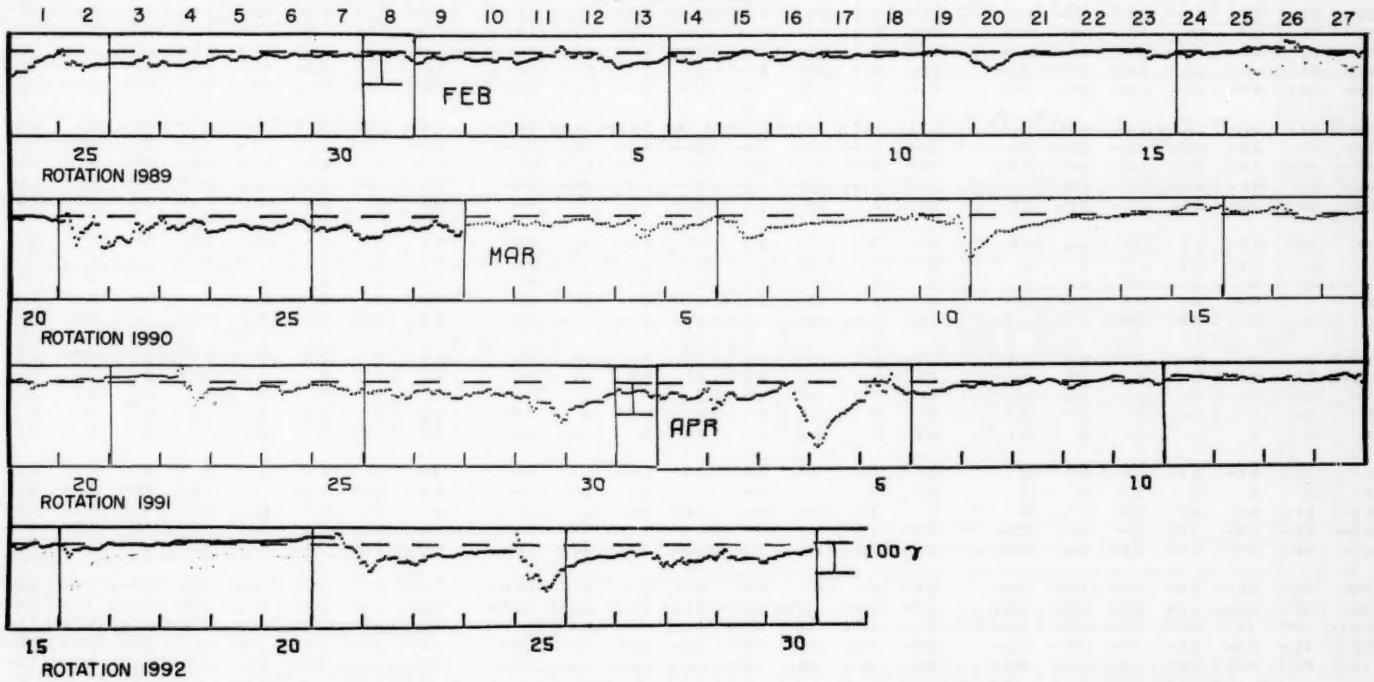
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

APRIL 1979

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-46	-54	-47	-53	-44	-36	-31	-36	-34	-36	-44	-44	-49	-47	-55	-49	-48	-49	-46	-43	-39	-33	-21	-32
2	-20	-56	-85	-78	-60	-65	-71	-55	-40	-34	-35	-37	-44	-53	-56	-55	-53	-55	-56	-52	-49	-45	-39	-40
3	-41	-39	-38	-35	-32	-33	-27	-28	-25	-18	-10	-11	-12	-4	-1	2	-38	-58	-77	-82	-91	-103	-118	-169
4	-164	-171	-191	-197	-188	-183	-167	-156	-136	-128	-118	-112	-105	-101	-95	-92	-92	-86	-82	-77	-69	-65	-59	-58
5	-57	-57	-33	-31	-13	-1	7	-14	-16	2	-32	-36	-3	6	23	-13	-29	-24	-29	-32	-38	-41	-35	-29
6	-30	-37	-40	-41	-39	-41	-41	-39	-36	-28	-27	-28	-31	-29	-29	-25	-19	-19	-15	-13	-12	-14	-15	-13
7	-11	-12	-18	-21	-19	-17	-10	-7	-8	-12	-13	-4	-5	-4	-14	-12	-13	-9	-9	-12	-12	-10	-15	-9
8	-13	-13	-11	-6	-3	-1	3	7	9	3	-5	-10	-6	-3	-1	2	6	6	-2	-3	-6	-10	-13	-12
9	-13	-15	-25	-23	-23	-16	-12	-13	-8	-5	-5	-4	-1	0	-1	-1	1	2	3	4	6	8	10	13
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14	-1	-2	0	4	8	6	10	12	10	12	14	11	14	13	18	16	9	6	2	7	13	12	-12	-11
15	-10	-12	-9	-18	-15	-13	-10	-8	-4	-2	4	4	3	-1	-9	-13	-11	-6	-5	-4	0	-4	-4	-7
16	-3	-8	-19	-29	-42	-31	-18	-17	-21	-16	-12	-10	-11	-15	-18	-19	-17	-18	-18	-10	-5	-2	3	1
17	-2	-5	-5	-3	-1	-1	-3	-1	-1	0	-2	-4	-5	-2	-2	-4	-8	-8	-4	-6	-4	1	0	-4
18	-7	-6	-3	-2	4	7	10	11	9	6	3	7	10	9	7	7	8	10	10	7	5	7	7	3
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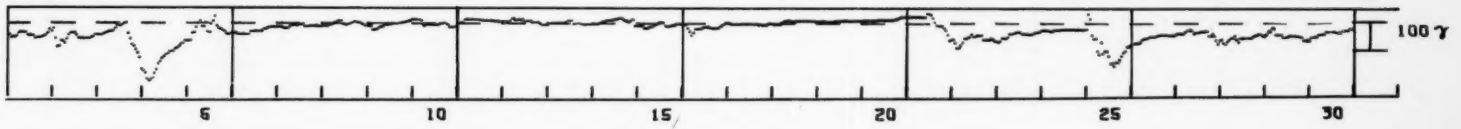
24	-25	-26	-26	-27	-31	-31	-21	-21	-22	-21	-19	-20	-20	-21	-20	-20	-21	-21	-24	-24	-25	-24	-22	-19
25	33	12	-46	-56	-52	-100	-109	-65	-108	-95	-101	-115	-142	-136	-148	-134	-132	-124	-112	-100	-94	-79	-82	-76
26	-69	-68	-69	-68	-64	-58	-53	-52	-50	-46	-45	-48	-49	-43	-40	-39	-39	-40	-42	-45	-42	-44	-42	-38
27	-35	-35	-36	-41	-31	-25	-22	-21	-29	-38	-32	-30	-30	-27	-31	-26	-30	-46	-49	-37	-48	-61	-74	-60
28	-56	-71	-77	-64	-58	-50	-53	-43	-59	-68	-51	-52	-53	-53	-51	-51	-52	-45	-41	-43	-37	-38	-46	-50
29	-39	-28	-29	-18	-19	-43	-43	-42	-41	-52	-52	-48	-44	-41	-48	-48	-46	-49	-51	-54	-63	-61	-59	-66
30	-51	-48	-52	-47	-40	-39	-40	-39	-31	-36	-34	-33	-33	-34	-38	-35	-34	-28	-29	-29	-28	-23	-22	-21



PRINCIPAL MAGNETIC STORMS

APRIL 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HER	33.7S	31	2000	..	..	..	..	31(8) 01(1)	5	31	73	63	01	18
SIT	60.0N	1	01--	..	..	..	..	04(3)	8	--	1040	520	06	09
NEW	55.1N	1	2150	SC*	4	66	6	01(8) 02(1,2)	5	27	150	161	03	05
HON	21.1N	1	2149	SC	--	9	4	01(2,4)	4	3	123	27	02	23
JAI	17.3N	1	2150	SC	- 1.3	21	- 6	--	-	4	63	24	02	23
SHL	14.7N	1	2150	SC	- .4	10	3	--	-	5	74	51	02	23
UJJ	13.5N	1	2150	SC	- .8	25	- 7	--	-	3	69	26	02	23
ABG	09.5N	1	2150	SC	- .7	13	- 6	02(2)	5	2	81	23	02	23
GUA	04.0N	1	2150	SC*	1	27	- 9	02(1)	6	10	130	20	02	18
ANN	01.5N	1	2150	SC	- 1	19	10	--	-	4	157	54	02	23
TRD	01.1S	1	2150	SC	- .2	14	22	--	-	3	197	127	02	23
HER	33.7S	1	2150	SC	3	38	23	01(8) 02(1)	5	30	120	80	03	07
GNA	43.2S	1	2150	SC*	4.9*	-17 *	16 *	02(1)	6	23	120	100	02	23
KGL	56.5S	1	2151	SC*	16	-56	--	02(1)	8	--	--	--	02	00
COL	64.6N	3	15--	..	..	..	..	03(6)	8	543	2170	1320	04	13
NEW	55.1N	3	1002	SC	3	22	3	03(8) 04(1,2)	7	54	485	477	05	02
WIT	54.2N	3	1001	SC*	2 *	23 *	0	03(8)	7	47	325	185	04	09
SJG	29.9N	3	1001	SC	.5	5	2	03(8)	7	14	264	68	04	13
HON	21.1N	3	1002	SC	--	4	2	03(8)	6	3	172	41	04	15
JAI	17.3N	3	1000	SC	- .6	14	- 4	--	-	10	165	36	04	15
SHL	14.7N	3	1000	SC	- .4	14	3	--	-	7	188	26	04	15
UJJ	13.5N	3	1000	SC	- .4	18	- 5	--	-	9	201	34	04	15
AEG	09.5N	3	1000	SC	- .4	14	- 5	03(6,8)	6	9	185	48	04	15
GUA	04.0N	3	1001	..	..	..	..	03(8)	6	10	150	30	04	13
ANN	01.5N	3	1000	SC	- 1.1	32	9	--	-	8	245	65	04	15
TRD	01.1S	3	1000	SC	.1	34	38	--	-	--	--	92	04	15
HER	33.7S	3	1002	SC*	- 1	14	-	03(6)	6	29	147	140	04	18
GNA	43.2S	3	1001	SC*	1.6	17 *	6	03(6,7,8) 04(1,5)	5	23	200	170	04	14
KGL	56.5S	3	1000	SC*	-26	-32	8	03(7,8) 04(1)	9	--	--	--	04	15
COL	64.6N	5	0156	SC*	-26	327	--	05(4,5,6)	5	99	700	320	06	10
NEW	55.1N	5	0155	SC*	5	70	3	05(5,6)	6	48	203	90	06	24
WIT	54.2N	5	0156	SC*	- 9 *	34	0	05(4,5,6)	6	36	215	75	05	20
SJG	29.9N	5	0155	SC	.5	19	8	05(5)	6	10	150	15	06	03
HON	21.1N	5	0155	SC	--	12	6	05(5)	6	3	114	16	06	03
JAI	17.3N	5	0155	SC	- 1.8	31	-11	--	-	10	150	52	05	20
SHL	14.7N	5	0155	SC	- .6	33	5	--	-	8	178	65	05	20
UJJ	13.5N	5	0155	SC	- 1	40	- 8	--	-	7	181	46	05	20
ABG	09.5N	5	0155	SC	- 1.2	28	-13	05(4)	7	7	166	50	05	20
GUA	04.0N	5	0156	SC	--	61	-18	05(4)	6	--	190	40	06	03
ANN	01.5N	5	0155	SC	- 2.8	58	21	--	-	7	280	115	05	20
TRD	01.1S	5	0155	SC	.6	63	60	--	-	4	270	235	05	20
HER	33.7S	5	0156	SC	4	39	28	05(4)	7	33	124	116	06	05
GNA	43.2S	5	0156	SC*	-11.5*	27 *	-41 *	05(4,5,6)	5	28	110	130	05	19
KGL	56.5S	5	0155	SC*	92	-117	-24	05(6)	6	--	--	--	06	03
KGL	56.5S	12	2002	SC*	- 5	8	2	12(8)	4	--	--	--	13	10
KGL	56.5S	17	0037	SC	4	6	2	17(3)	3	--	--	--	17	15
COL	64.6N	21	07--	..	..	..	..	22(4,6) 23(4)	6	116	1150	660	23	21
SIT	60.0N	21	07--	..	..	..	..	22(4)	6	70	580	500	23	21
NEW	55.1N	21	06--	..	..	..	..	22(1,4) 23(1)	5	50	150	348	24	13
JAI	17.3N	21	0800	..	..	..	..	--	-	11	134	48	23	02
SHL	14.7N	21	0800	..	..	..	..	--	-	9	162	47	23	02
UJJ	13.5N	21	0800	..	..	..	..	--	-	10	136	51	23	02
ABG	09.5N	21	0800	..	..	..	..	21(5) 22(2,4)	5	10	141	64	23	02
GUA	04.0N	21	0748	..	..	..	..	22(1)	5	10	110	20	23	09
ANN	01.5N	21	0800	..	..	..	..	--	-	9	179	84	23	02
TRD	01.1S	21	0800	..	..	..	..	--	-	6	230	114	23	02
HER	33.7S	21	1000	..	..	..	..	21(8) 22(2,4) 23(1,2)	5	29	133	112	23	18
GNA	43.2S	21	02--	..	..	..	..	22(1,7)	5	15	120	110	23	21
KGL	56.5S	21	1942	SC*	22	22	6	22(1,7,8)	6	--	--	--	23	21
KGL	56.5S	21	2031	SC*	13	12	3	22(1,7,8)	6	--	--	--	23	21
COL	64.6N	24	2358	SC*	-17	319	51	25(3,4)	7	379	2110	1420	26	02
SIT	60.0N	24	2359	SC*	--	--	--	25(3)	8	--	--	770	26	02
NEW	55.1N	24	2357	SC*	9	119	6	25(2,3)	8	84	1138	813	26	06
WIT	54.2N	24	2358	SC*	- 9 *	94	0	25(1,2,3)	7	73	340	190	26	01
SJG	29.9N	24	2358	SC	1	20	12	25(1)	7	16	166	50	26	03
HON	21.1N	24	2358	SC	2	12	6	25(1,3)	7	11	265	49	26	01
JAI	17.3N	24	2357	SC	- 1.4	33	- 9	--	-	13	309	51	26	02
SHL	14.7N	24	2357	SC	- .4	31	4	--	-	14	459	75	26	02
UJJ	13.5N	24	2357	SC	- .9	39	- 9	--	-	11	329	76	26	02
ABG	09.5N	24	2357	SC	- 1	30	- 8	25(3,4)	7	10	296	88	26	02
GUA	04.0N	24	2358	SC*	--	47	-15	25(3)	7	10	390	60	26	02
ANN	01.5N	24	2357	SC	- 1.1	43	19	--	-	12	--	113	26	02
TRD	01.1S	24	2357	SC		32	40	--	-	6	--	--	26	02
HER	33.7S	24	2358	SC*	6	48	35	25(3,4)	7	41	265	174	26	08
GNA	43.2S	24	2358	SC*	-11.3*	-32 *	-44 *	25(1,4)	7	34	280	250	26	12
KGL	56.5S	24	2357	SC*	91	38	-11	25(1)	8	--	--	--	26	08

PRINCIPAL MAGNETIC STORMS

APRIL 1979

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
COL	64.6N	27	15--	..	..	..	..	29(2)	7	252	1440	640	30	15
SIT	60.0N	27	08--	..	..	..	..	29(3)	7	--	550	590	30	21
NEW	55.1N	27	12--	..	..	..	..	28(3) 29(2)	6	39	273	239	02	12
JAI	17.3N	27	1400	..	..	..	..	--	-	7	64	37	28	12
SHL	14.7N	27	1400	..	..	..	..	--	-	7	93	37	28	12
UJJ	13.5N	27	1400	..	..	..	..	--	-	--	--	--	28	12
ABG	09.5N	27	1400	..	..	..	..	27(6) 28(2,3,4)	5	5	87	44	28	12
ANN	01.5N	27	1400	..	..	..	..	--	-	6	179	79	28	12
TRD	01.1S	27	1400	..	..	..	..	--	-	4	194	116	28	12
HER	33.7S	27	1200	..	..	..	..	27(6,8) 29(2,8)	5	25	93	78	30	18
WIT	54.2N	28	19--	..	..	..	..	29(6)	6	33	165	100	30	03
JAI	17.3N	28	1900	..	..	..	..	--	-	9	84	46	30	01
SHL	14.7N	28	1900	..	..	..	..	--	-	9	115	49	30	01
UJJ	13.5N	28	1900	..	..	..	..	--	-	7	98	42	30	01
ABG	09.5N	28	1900	..	..	..	..	29(2,8)	5	6	108	52	30	01
GUA	04.0N	28	0100	..	..	..	..	28(4)	5	10	160	40	30	15
ANN	01.5N	28	1900	..	..	..	..	--	-	6	197	97	30	01
TRD	01.1S	28	1900	..	..	..	..	--	-	4	226	123	30	01
KGL	56.5S	28	1906	SC*	4	7	3	29(8)	7	--	--	--	30	12

Reports were received from the following observatories:

ALIBAG ANNAMALAINAGAR COLLEGE GNANGARA GUAM HERMANUS HONOLULU JAIPUR KERGUELEN NEWPORT
SAN JUAN SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

RADIO PROPAGATION QUALITY INDICES

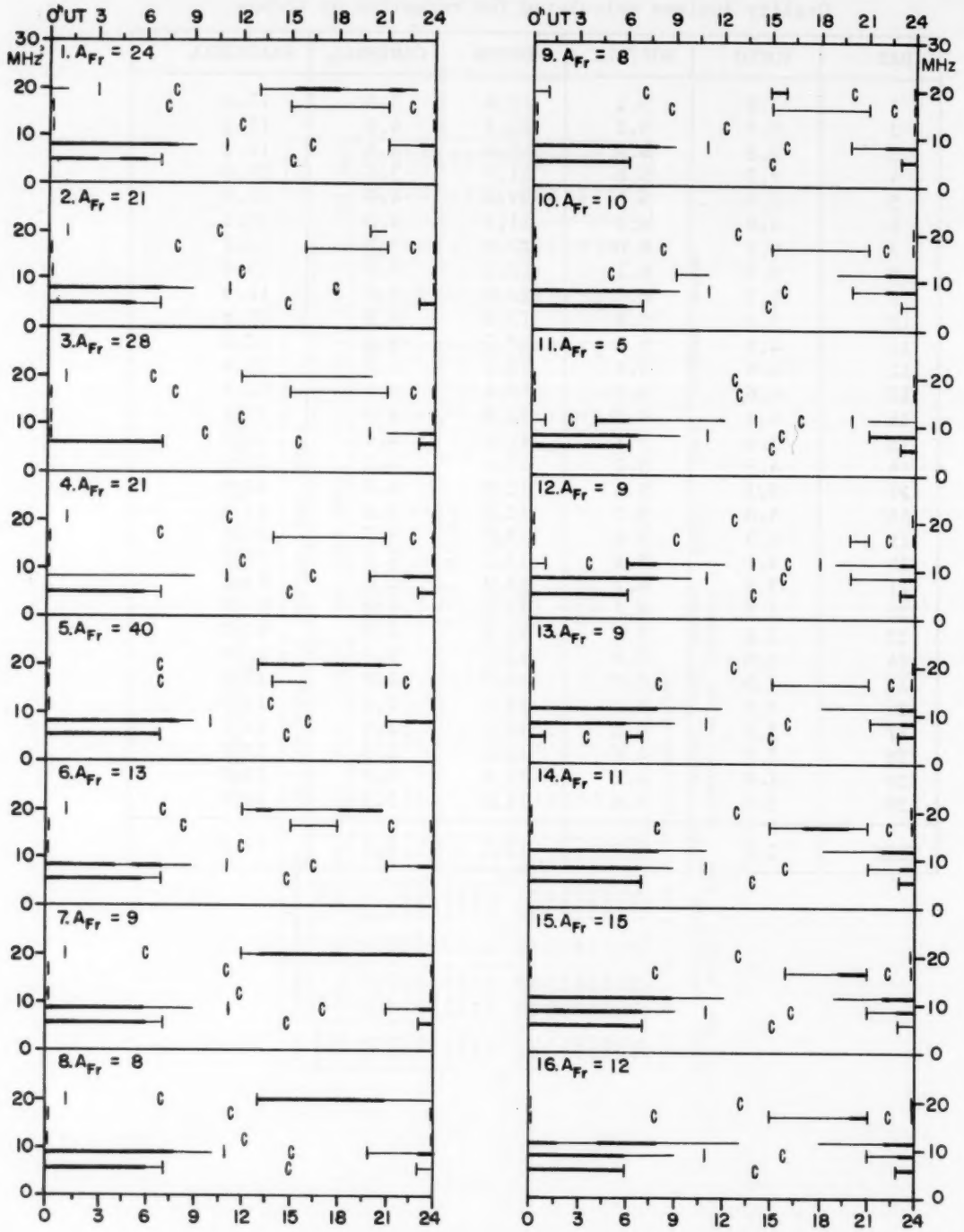
APRIL 1979

Quality Indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	3.8	5.1	12.6	3.8	12.4
2	2.7	5.2	12.3	4.0	12.2
3	2.8	4.9	12.6	4.3	12.3
4	2.7	5.0	11.4	3.6	10.6
5	2.4	5.6	12.4	4.1	12.5
6	2.9	4.9	11.3	4.0	11.5
7	4.2	6.0	12.6	4.2	12.2
8	5.3	6.1	12.5	4.6	13.3
9	5.3	6.1	12.6	5.1	12.9
10	5.1	5.8	12.8	4.8	12.8
11	4.8	5.5	12.7	4.8	12.6
12	4.5	5.4	13.2	4.8	12.4
13	4.6	5.2	13.4	4.4	12.4
14	4.1	4.9	12.5	4.3	13.1
15	3.3	5.1	11.4	4.1	11.8
16	4.5	5.2	12.4	4.2	12.0
17	5.1	5.4	12.8	4.9	12.9
18	5.0	5.5	12.5	5.0	13.0
19	4.5	5.6	13.2	4.7	11.9
20	5.1	5.4	13.2	5.2	13.2
21	3.6	4.7	13.2	4.4	13.2
22	1.5	4.7	11.4	4.2	11.8
23	3.1	5.1	11.8	4.0	12.2
24	3.0	5.0	12.0	4.7	12.6
25	1.5	5.1	10.7	3.5	11.0
26	2.8	5.0	11.4	2.6	11.3
27	3.2	4.5	12.2	1.9	12.1
28	2.7	4.6	10.2	2.3	11.8
29	1.9	4.2	11.6	2.1	12.0
30	2.5	4.6	11.5	3.5	12.7
MEAN	3.6	5.2	12.2	4.1	12.3

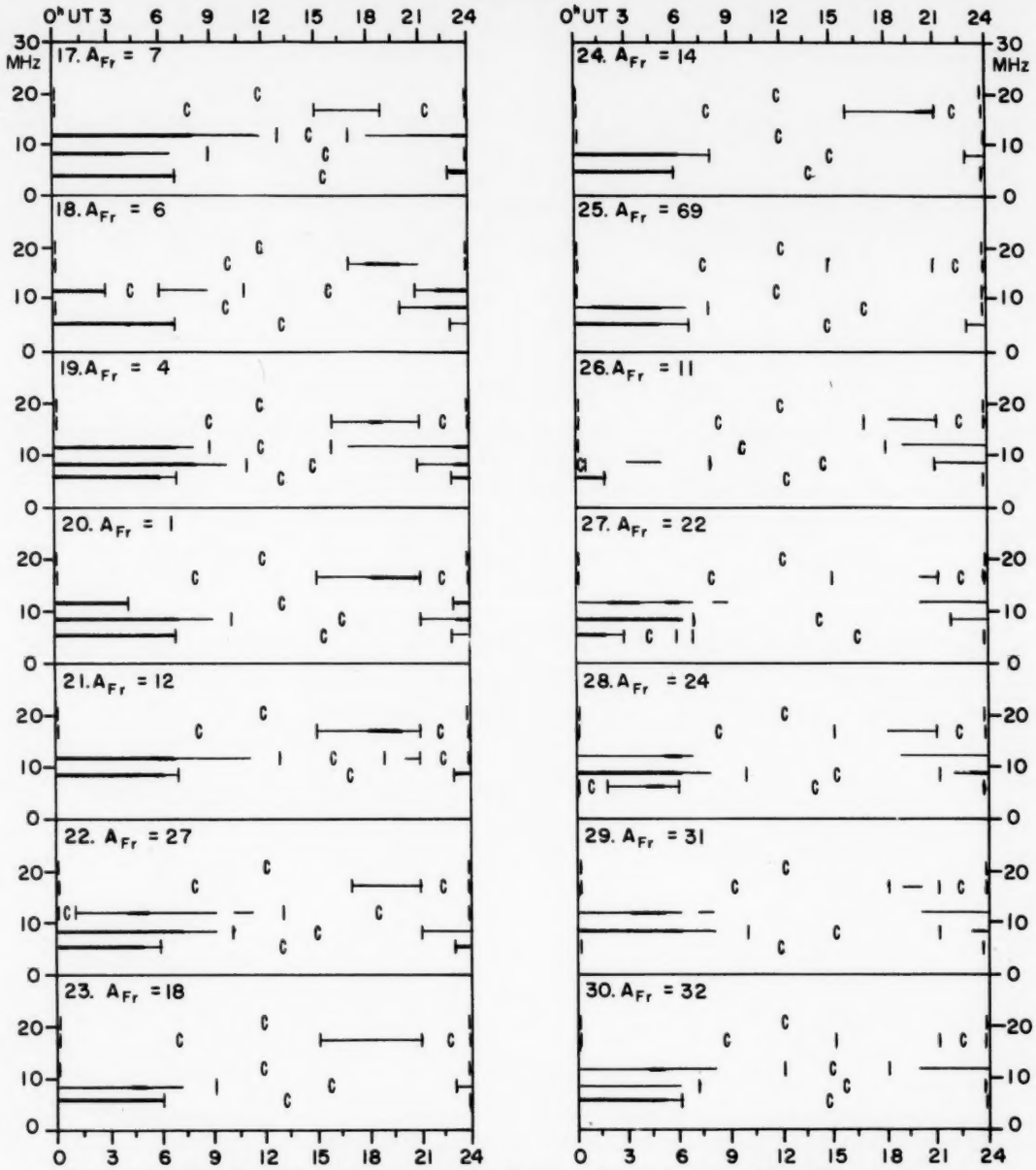
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1979



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1979



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow - Norfolk circuit are represented above. Heavy solid lines represent field strengths ≥-12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line.

Adapted from Observations by Deutsche Bundespost

☆GPO 1979—677-073/2

JUNE 1979 NUMBER 418 -- Part II

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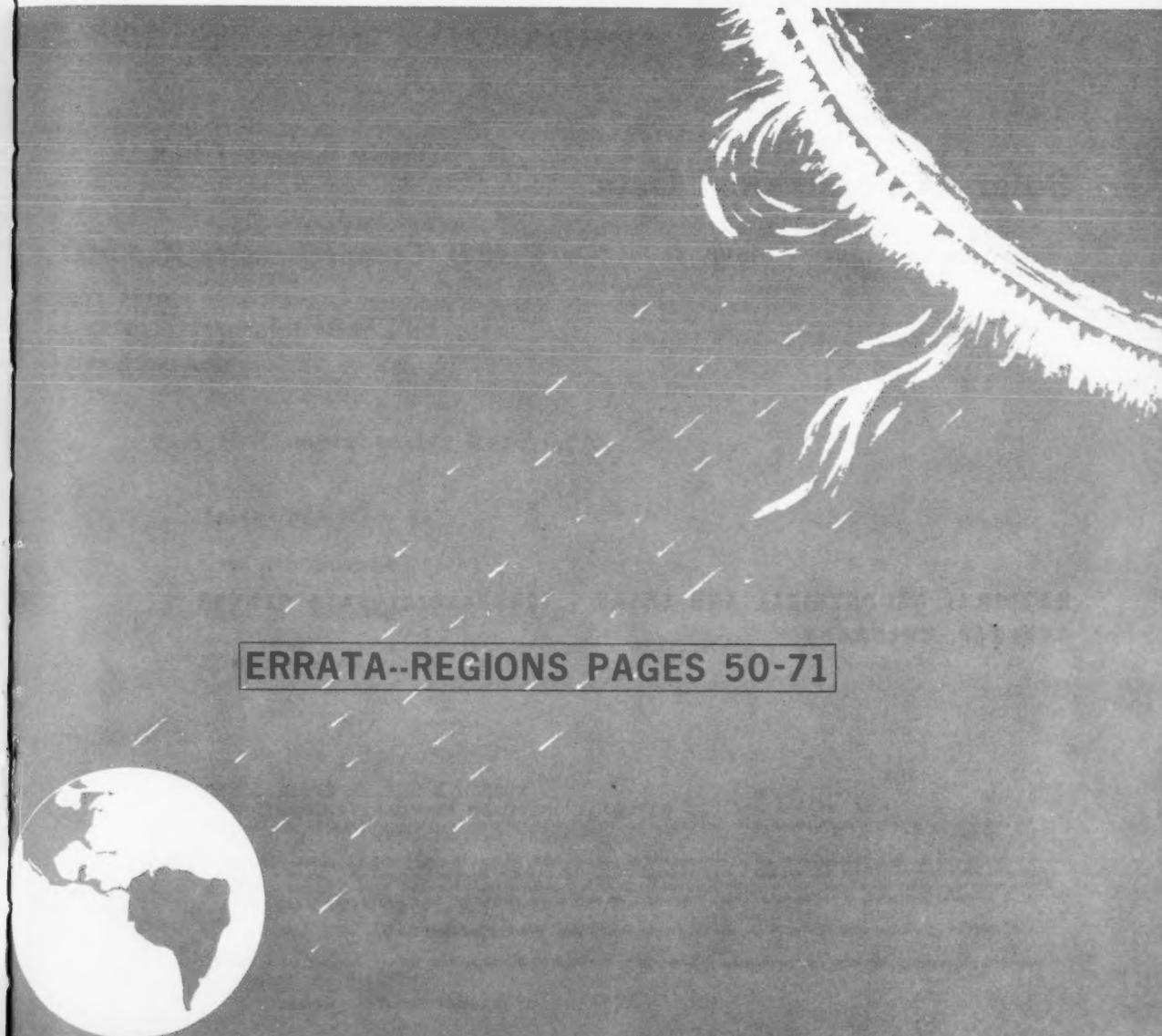
JUL 16 1979
DEPARTMENT OF COMMERCE
UNITED STATES OF AMERICA

Solar-Geophysical Data comprehensive reports

Data for December 1978 -- November 1978 & Miscellanea

Explanation of Data Reports Issued as Number 414 (Supplement) February 1979



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Solar - Geophysical Data

NO. 418 JUNE 1979

Part II (Comprehensive Reports)

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Solar-Geophysical Data, 390 Part I (or Part II), pages, February 1977, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 418

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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DETAILED COVERAGE FOR 1978 AND 1979 PUBLISHED IN "SOLAR-GEOPHYSICAL DATA"

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A.2b	Zurich Final Sunspot Numbers Rz	415A 10	415A 10	415A 10	415A 10					
A.2c	American Relative Sunspot Numbers RA	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11
A.3a	Mt. Wilson Magnetograms	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	
A.3b	Mt. Wilson Magnetic Characteristics of Sunspots	411A106	412A102	413A108	414A110	418B 50	418B 60	417A106	418A108	
A.3c	Kitt Peak Magnetograms	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	
A.3d	Mean Solar Magnetic Field (Stanford)	410A 41	411A 40	412A 34	413A 42	414A 42	415A 44	416A 42	417A 36	418A 38
A.3e	Stanford Magnetograms					415A 52	416A 50	417A 44	418A 43	
A.4	H-alpha Filtergrams	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	
A.5	Calcium Plage Drawings - McMath (or Catania)	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	
A.5a	Calcium Plage (McMath) and Sunspot Regions	411A106	412A102	413A108	414A110	418B 50	418B 60	417A106	418A108	
A.5b	McMath Daily Calcium Plage Indices	411A116	412A114	413A116	414A121	415A125	416A116	417A118	418A118	
A.6	H-alpha Synoptic Charts	411A 44	412A 38	413A 46	414A 46	415A 48	416A 46	417A 40	418A 42	
A.6b	Synoptic Chart and Active Regions (Paris)	415B 4	416B 4	417B 4	418B 4					
A.6c	Stanford Solar Magnetic Field Synoptic Charts					415A 49	416A 47	417A 41	418A 43	
A.6d	Kitt Peak Solar Magnetic Field Synoptic Charts								418A 45	
A.7f	Helium D3 Chromosphere (Big Bear)	410A 37	411A 36	---	413A 38	---	416A 38	417A 33	418A 34	
A.7g	Helium Synoptic Maps (KPNO)	410A 38	411A 35	412A 30	413A 36	414A 34	415A 40	416A 36	417A 32	418A 33
A.7h	Coronal Line Emission (Sac Peak)	411A 46	412A 40	413A 48	414A 48	415A 52	416A 50	417A 44	418A 48	
A.8aa	2800 MHz - Daily Values of Solar Flux (ARO-Ottawa)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11
A.8ac	2800 MHz - Daily Values of Adj. Solar Flux (ARO-Ottawa)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11
A.8g	Daily Values of Adjusted Solar Flux (AFGL)	410A 11	411A 11	412A 9	413A 11	414A 11	415A 11	416A 11	417A 9	418A 11
A.9cb	8.6 mm Radio Maps of the Sun (NOSC - La Posta)	411A 46	---	---	---	---	---	---	---	
A.9d	2 cm Radio Maps of the Sun (NOSC - La Posta)	411A 46	---	---	---	---	---	---	---	
A.10a	169 MHz - Interferometric Observations (Nancay)	410A 23	411A 20	412A 18	413A 21	414A 24	415A 25	416A 25	417A 21	
A.10c	21 cm East-West Solar Scans (Fleurs)	412B 58	411A 23	412A 21	415B 68	414A 27	415A 28	416A 28	417A 24	418A 25
A.10d	43 cm East-West Solar Scans (Fleurs)	412B 59	411A 24	412A 22	415B 69	414A 28	415A 29	416A 29	417A 25	418A 26
A.10e	10.7 cm East-West Solar Scans (Ottawa-ARO)	410A 25	411A 22	412A 20	413A 23	414A 26	415A 27	416A 27	417A 23	418A 24
A.10f	3 cm East-West Solar Scans (Toyokawa)	410A 24	411A 21	412A 19	413A 22	414A 25	415A 26	416A 26	417A 22	418A 23
A.11k	Solar X-ray Radiation (SOLRAD 11)	411A120	412A118	413A119	414A126	415A129	416A120	417A119	418A122	
A.11g	Solar X-ray (SMS/GOES) (graphs)	416B 96	416B 52	417B 41	418B 31					
A.12ba	Cosmic Ray Protons (Pioneers 6 & 7)	---	---	---	---	414A 36	---	---	---	---
A.12bb	Cosmic Ray Protons (Pioneers 8 & 9)	---	---	412A 29	---	414A 37	---	---	---	---
A.12e	Energetic Solar Particles (IMP H & J)	416B 91	416B 46	417B 36	418B 26					
A.12f	Energetic Solar Particles (GMS/SEM)	---	---	---	---	---	---	---	---	---
A.13a	Solar Wind (Pioneers 6 & 7)	---	---	---	---	414A 36	---	---	---	---
A.13ab	Solar Wind (Pioneers 8 & 9)	---	---	412A 29	---	414A 37	---	---	---	---
A.13d	Solar Wind from IPS Measurements	410A 39	414B 50	414B 51	414B 52	414A 39	415A 45	416A 39	417A 37	418A 35
A.13e	Solar Plasma (IMP H & J)	415B 53	416B 45	417B 35	418B 25					
A.13f	Solar Wind (Pioneer 12 (Venus))					414A 38	415A 39	416A 35	417A 31	418A 32
A.17	Interplanetary Magnetic Field (Pioneer 8)	---	---	---	---	---	---	---	---	---
A.17	Interplanetary Magnetic Field (Pioneer 9)	---	---	412A 29	---	414A 37	---	---	---	---
A.17c	Inferred IP Magnetic Field	410A 40	411A 38	412A 32	413A 40	415A 42	415A 42	417A 34	417A 34	418A 36
A.18	Interplanetary Electric Field (Pioneer 8)	---	---	---	---	---	---	---	---	---
A.18	Interplanetary Electric Field (Pioneer 9)	---	---	412A 29	---	414A 37	---	---	---	---
B.	IONOSPHERIC (AND RADIO WAVE PROPAGATION) PHENOMENA									
B.52	Graphs of Transmission Frequency Range	411A158	412A162	413A160	414A172	415A162	416A166	417A166	418A165	
B.53	Quality Figures Based on Frequency Ranges	411A160	412A161	413A159	414A174	415A161	416A165	417A165	418A165	
C.	FLARE-ASSOCIATED EVENTS									
C.1a	Optical Observations Flares	410A 14	411A 14	412A 12	413A 14	414A 14	415A 14	416A 14	417A 12	418A 14
C.1ba	Optical Observations Flares (Standardized Data)	415B 6	416B 8	417B 6						
C.1d	Flare Patrol Observations	410A 22	411A 19	412A 17	413A 20	414A 23	415A 24	416A 24	417A 20	418A 23
C.1d	Flare Patrol Observations	415B 32	416B 30	417B 25						
C.1e	Flare Indices (by day)	415B 31	416B 29	417B 24						
C.1f	Flare Indices (by Region)	416B 70	417B 58							
C.3	Solar Radio Waves - Outstanding Occurrences	415B 33	416B 31	417B 26	418B 6					
	Solar Radio Waves - Fixed Frequencies - Selected	410A 26	411A 25	412A 23	413A 26	414A 29	415A 30	416A 30	417A 26	418A 28
C.3t	43.25, 80 and 160 MHz Selected Bursts (Culgoora)	411A144	412A148	413A147	414A159	415A147				
C.4a	Solar Radio Spectral Obs. (Fort Davis)	411A135	414B 53	414B 55	414A142	417B 60	417B 62	417A138		
C.4d	Solar Radio Spectral Obs. (Culgoora)	412B 60	412A134	413A134	414A142	415A129	416A134	417A138	418A137	
C.4e	Solar Radio Spectral Obs. (Weissenau)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	
C.4f	Solar Radio Spectral Obs. (Sagamore Hill)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	
C.4h	Solar Radio Spectral Obs. (Dwingeloo)	411A135		413A134	414A142	415A129	416A134	417A138	418A137	
C.4i	Solar Radio Spectral Obs. (Durnten)	411A135	412A134	413A134	415B 70	415A129	416A134	417A138	418A137	
C.4j	Solar Radio Spectral Obs. (Manila)	411A135	412A134	413A134	414A142	415A129	416A134	417A138	418A137	
C.5e	Solar X-ray (SMS/GOES) (graphs)	416B 96	416B 52	417B 41	418B 31					
C.6	Sudden Ionospheric Disturbances	411A117	412A115	413A117	414A122	415A126	416A117	417A119	418A119	
D.	GEOMAGNETIC AND MAGNETOSPHERIC PHENOMENA									
D.1a	Geomagnetic Indices Kp, Kn, Ks, Km, Ap, aa, Cp	411A151	413B 82	413A152	414A164	415A155	416A158	417A158	418A158	
D.1ba	27-day Chart of Kp Indices	411A153	412A157	413A154	414A166	415A157	416A160	417A160	418A160	
D.1c	27-day Chart of C9	414A167	414A167	414A167	414A167					
D.1d	Principal Magnetic Storms	411A156	412A160	413A157	414A170	415A158	416A163	417A163	418A163	
D.1e	Reduced Magnetograms									
D.1f	Sudden Commencement and Solar Flare Effects	411A157	412A161	413A158	414A171	415A160	416A164	418B 76		
D.1g	Equatorial Indices Dst	411A155	412A159	413A156	414A169	416B 90	416A162	417A162	418A162	
D.1h	Geomagnetic Substorm Log (Boulder)	410A 43	411A 41	412A 36	413A 43	414A 43	415A 46	416A 43	417A 38	418A 39
F.	COSMIC RAYS									
F.1a	Cosmic Ray Neutron Counts (Deep River)	411A150	412A154	414B 57	414A161	415A154	416A151	417A151	418A151	
F.1b	Cosmic Ray Neutron Counts (Climax)		415B 72	415B 72	415B 72	416B 88	416A151	417A151	418A151	
F.1e	Cosmic Ray Neutron Counts (Alert)	411A150	412A154	414B 57	414A161	415A154	416A151	417A151	418A151	
F.1f	Cosmic Ray Neutron Counts (Calgary)									
F.1h	Cosmic Ray Neutron Counts (Thule)									
F.1i	Cosmic Ray Neutron Counts (Kiel)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	
F.1j	Cosmic Ray Neutron Counts (Tokyo)	411A150	412A154	413A149	418B 74	415A154	416A151	417A151	418A151	
F.1k	Cosmic Ray Neutron Counts (Kula)									
F.1l	Cosmic Ray Neutron Counts (Huancayo)						417B 67	418B 72		
H.	MISCELLANEOUS									
H.60	IUWDS Alert Decisions	410A 5	411A 4	412A 4	413A 5	414A 4	415A 5	416A 4	417A 4	418A 5
H.62	Abbreviated Calendar Record	416B 62	417B 50	418B 40						

Notes:

"411A 46" listed under 1978 Sep means that the sunspot drawings for September 1978 were contained in *Solar-Geophysical Data* Number 411 - Part I, beginning on page 46.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

SGD 418 Part II (Comprehensive)

DECEMBER 1978 DATA

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ACTIVE REGIONS

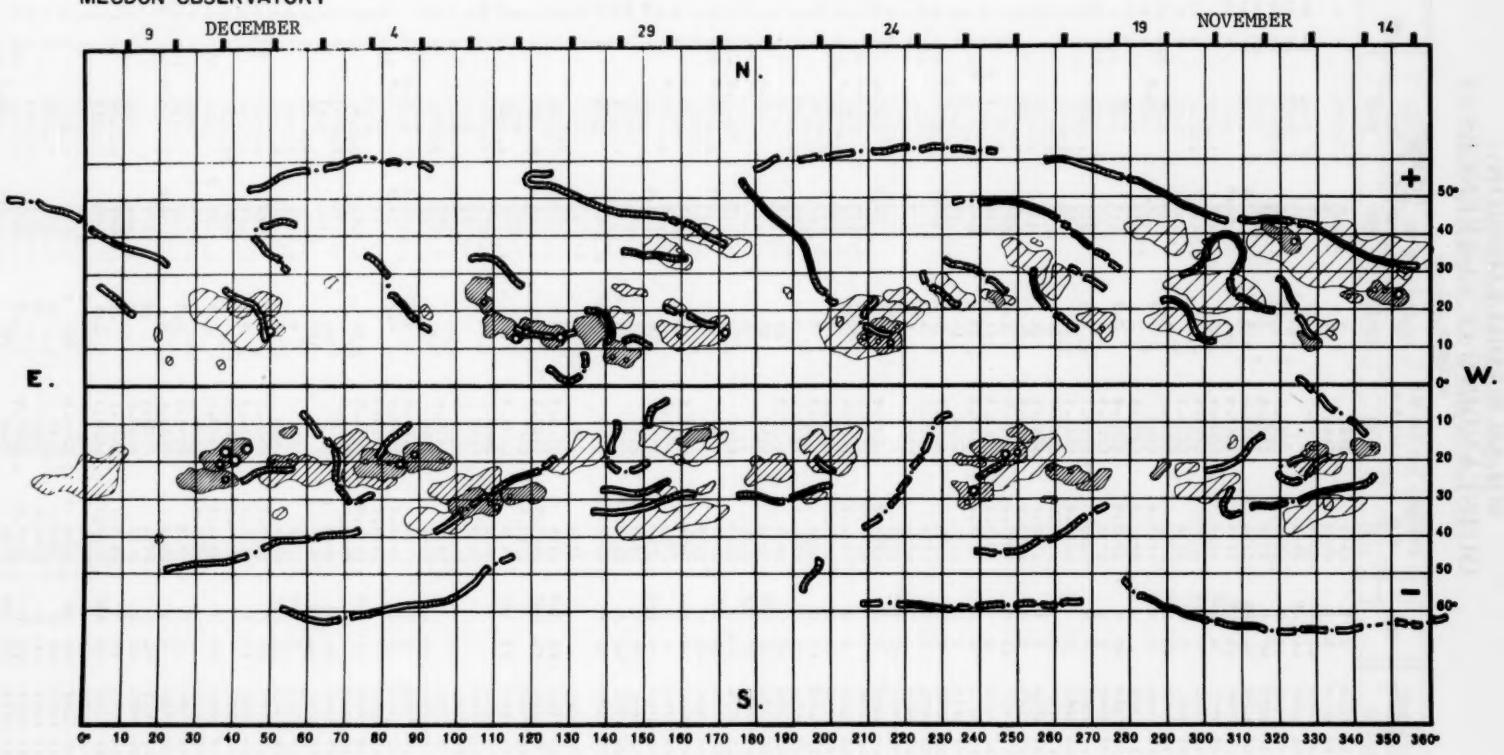
CARRINGTON ROTATION 1675

(November 13 to December 10, 1978)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1675	Activity at West Limb
1	31°N	354°	>6	2			decreasing
2	24 N	349	+6	3			decreasing
3	17 S	344	-1	2			decreasing
4	24 N	340	-3	2			stable
5	16 N	332	>6	1	x		dispersed
6	20 S	331	>6	1	x	(6)	decreasing
7	17 S	330	-2	2			decreasing
8	12 N	328	+5	1	x		decreasing
9	40 N	321	+1	2			increasing
10	36 N	302	>6	1	x		dispersed
11	27 S	301	>6	1	x		dispersed
12	16 N	296	>6	1	x	(13)	dispersed
13	22 S	295	>6	1	x		dispersed
14	22 S	286	-2	1	x		stable
15	17 S	272	>6	2			decreasing
16	25 S	271	>6	1	x		disappeared
17	24 S	263	+5	2			decreasing
18	27 N	260	>6	1	x	(17)	dispersed
19	30 S	258	+3	1	x		dispersed
20	34 N	253	>6	1	x		dispersed
21	12 S	251	-1	1	x		decreasing
22	17 S	246	>6	5		(18)	decreasing
23	24 N	244	+1	1	x		dispersed
24	24 N	244	-6	1	x		(?)
25	28 S	238	>6	4			decreasing
26	19 S	237	>6	1	x		dispersed
27	24 N	220	>6	1	x		dispersed
28	17 N	215	>6	2			decreasing
29	13 N	213	-2	4			stable
30	16 S	200	>6	1	x	(27)	decreasing
31	29 S	196	>6	1	x	(26)	decreasing
32	21 S	184	>6	1	x	(29)	decreasing
33	14 S	169	>6	1	x		dispersed
34	27 S	166	+1	1	x		disappeared
35	14 N	164	>6	3			decreasing
36	13 S	163	+3	1	x		decreasing
37	22 N	157	>6	1	x		dispersed
38	27 S	155	-1	1	x		decreasing
39	27 N	146	>6	1	x		dispersed
40	9 N	144	>6	2			decreasing
41	16 N	135	>6	1	x		dispersed
42	17 S	133	>6	1	x	(40)	dispersed
43	16 N	122	>6	4			decreasing
44	28 S	118	>6	2		(42)	decreasing
45	17 N	112	>6	3			decreasing
46	25 N	106	>6	2			decreasing
47	30 S	105	0	3			stable
48	26 S	103	>6	1	x	(42)	decreasing
49	28 S	92	>6	5			decreasing
50	20 N	91	-2	1	x		dispersed
51	20 S	79	>6	4			decreasing
52	20 S	76	>6	1	x	(45)	dispersed
53	28 N	66	>6	1	x		dispersed
54	22 S	58	>6	1	x	(46)	dispersed
55	11 S	55	0	1	x		stable
56	19 S	53	0	2			decreasing
57	33 S	52	0	1	x		disappeared
58	17 N	50	>6	3		(51)	decreasing
59	23 N	46	>6	1	x	(49)	decreasing
60	17 S	38	+1	8			increasing
61	24 S	33	>6	2			stable
62	7 N	22	-4	1	x		(?)
63	14 N	19	+3	1	x		disappeared
64	24 S	0	>6	1	x	(57)	decreasing

SYNOPTIC SOLAR MAP
CARRINGTON ROTATION 1675
NOVEMBER 13 TO DECEMBER 10, 1978

MEUDON OBSERVATORY



SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1978

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	6100	KISV	3 S	0601	0602	3	4			
	6100	KISV	8 S	0653	0654	2	5			
	237	TRST	41 F	0759.4	0759.5	.2	125			O
	260	ONDR	44 NS	0810 E		135 D	50	4		
	237	TRST	41 F	1009.1	1009.4	.5	165			O
	930	BORD	45 C	1035	1035.6	1.2	43	2		
	245	SGMR	44 NS	1158 E	1928.4	548 D	77.5			
	410	SGMR	44 NS	1158 E	1918.4	548 D	60.6			
	1470	BERL	4 S/F	1212	1214.4	19	17			
	3000	BERL	4 S/F	1212	1214.5	23	31			
	9500	BERL	3 S	1212	1214.8					
	9400	HUAN	20 GRF	1212.6	1219.1	8.5	16	6		O
	410	SGMR	6 S	1212.8	1213	1.2	48.4	14.5		
	127	TORN		1212.9	1214.8		170			
	127	TORN	45 C	1212.9	1213.8	2.9	140	25		
	930	BORD	3 S	1212	1213.8	5	14	5		
	245	SGMR	7 S	1213	1213.7	2.8	377	112		
	8400	BERN	3	1213.2	1214.8	11	20			O
	10400	BERN	3	1213.2	1214.8	11	9			
	10400	BERN	3 S	1213.2	1214.8	11	3	9		
	8400	BERN	3 S	1213.2	1214.8	11	8	20		
	237	TRST	41 F	1213.3	1214.5	1.8	525			4R
	234	POTS	6 S	1213.3	1214.3	17	230	1 E		
	113	POTS	6 S	1213.4	1225.3	28	245	1 E		
	2650	DWIN	1 S	1213	1214	15	35	5		
	606	SGMR	3 S	1214	1214.8	1.8	15.7	4.7		
	9100	ARCE	3 S	1214	1215.1	4				
	10715	DWIN	1 S	1214	1215	6	8	4		
	9100	ARCE	29 PBI	1218		21.7				
	410	SGMR	6 S	1224.2	1227.5	8	90.7	27.2		
	606	SGMR	3 S	1224.6	1226.4	4.2	192	57.6		
	245	SGMR	7 S	1224.7	1227.4	7.5	268	80.4		
	237	TRST	45 C	1225.2	1227.2	2.7	295	95		O
	930	BORD	45 C	1225	1228.2	3	41	5		
	127	TORN	45 C	1234.8	1237.2	3.4	140	29		
	930	BORD	45 C	1424	1427.8	13	29	7		
	2800	OTTA	20 GRF	1440	1447	18	3	1.4		
	7000	SAOP	20 GRF	1444		4				O
	2800	OTTA	240 R	1512	1545	33	3	1.5		
	2800	OTTA	20 GRF	1650	1720	130	2.6	1.3		
	7000	SAOP	40 F	1836						
	4995	BOUL	3 S	1951.5	1953.5	12	30	10		
	2800	OTTA	1 S	1954	1955.5	3	9	4.5		
	2800	OTTA	29 PBI	1957	1957	15	3.4	1.7		
	1420	BOUL	45 C	2058 E	2100	3 D	16	5		
	1420	BOUL	41 F	2150.5E	2152	3 D	8	3		
	2695	BOUL	41 F	2152 E	2154	2.5D	16	5		
2	5730	IRKU		0315	0335		29			
	5730	IRKU	20 GRF	0315	0319.7	30	27	18		
	5730	IRKU	20 GRF	0401.5	0402.1	10	16	16		
	5730	IRKU		0401.5	0407		29			
	5730	IRKU	23 GRF	0433	0433.9	17	8	27		
	5730	IRKU		0433	0436.1		69			
	5730	IRKU		0433	0434		19			
	5730	IRKU		0433	0438.5		53			
	5730	IRKU		0433	0436.4		82			
	6100	KISV	45 C	0545	0556	30	23			
	1415	MANI	3 S	0547	0549.8	6.3	10.6	3.5		
	2695	MANI	3 S	0548.4	0550.6	4.7	23.3	7.7		
	5730	IRKU		0548.5	0555.9		77			
	5730	IRKU	23 GRF	0548.5	0551.5	34	33	17		
	5730	IRKU		0548.5	0601.5		45			
	100	GORK	44 NS	0600 E		94		5		
	200	GORK	44 NS	0600 E		300		5		
	6100	KISV	4 S/F	0740	0741	8	6			
	6100	KISV	20 GRF	0800	0804	10	3			
	237	TRST	41 F	0907.7	0907.8	.2	120			O
	100	GORK	41 F	0930.2	0931.1	4.5	20			
	100	GORK		0930.2	0933.6		130			
	200	GORK	45 C	0932.1	0933.4	2.5	35 D			
	200	GORK		0932.1	0934		35			
	950	GORK	1 S	0933	0933.6	1.3	4	2		
	650	GORK	1 S	0933	0933.6	2	8.6	4.3		
	237	TRST	41 F	0933	0933.3	.8	375			3R
	234	POTS	45 C	0933	0933.1	.7	160	15		
	113	POTS	45 C	0933.1	0933.1	.2	265	20		
	202	IZMI	21 GRF	1133.3	1134.3	1.5	175	110		
	410	SGMR	44 NS	1159 E	2011.8	547 D	24			
	245	SGMR	44 NS	1159 E	1248.4	547 D	112			
	113	POTS	45 C	1229.4	1230	.4	140	15		
	237	TRST	41 F	1246.4	1246.7	.6	100			O
	237	TRST	41 F	1247.4	1247.9	.5	245			24R
	2800	OTTA	20 GRF	1455	1545	175	3.4	2.8		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1978

DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	9400	HUAN	1 S	1850.7	1853.8	3.1	9.9	3		L
3	200	GORK	44 NS	0600 E		300		5		
	260	ONDR	44 NS	0815 E		354 D	30	2		
	127	TORN	43 NS	1108.9	1204.2	150 D	110	4.4		V2
	410	SGMR	44 NS	1200 E	1355.5	546 D	130			
	245	SGMR	44 NS	1200 E	1645.6	546 D	351			
	3100	CRIM	24 R	0845	1138		12			
	100	GORK	8 S	1028.9	1029.4U	1.6	140 D			
	113	POTS	45 C	1029.1	1029.1	.2	420	80		
	200	GORK	8 S	1032	1032.4	.8	38 D			
	3000	BERL	21 GRF	1100	1205	165	17			
	237	TRST	41 F	1101	1101.2	.3	280			D
	930	BORD	40 F	1105	1117.7	20	23	5		
	6100	KISV	4 S/F	1105	1109	6	13			
	1470	BERL	21 GRF	1105	1146	135	9			
	9500	BERL	3 S	1108.3	1109	.7				
	3000	BERL	3 S	1108.5	1109	1.5	11			
	10400	BERN	3	1108.6	1109	6	15			
	8400	BERN	3	1108.6	1109	6	19			D
	10400	BERN	3 S	1108.6	1109	6	5	15		
	8400	BERN	3 S	1108.6	1109	6	7	19		
	9100	GORK	1 S	1108.7	1109	1.4	16	8		
	536	ONDR	4 S/F	1108.7	1109	1.5	29	3.7		
	9100	ARCE	3 S	1108.7	1109.3	3				
	15000	KISV	4 S/F	1108	1109	3	9			
	9500	BERL	21 GRF	1108	1145	157				
	10715	DWIN	1 S	1109	1109	2	10	5		
	7000	SAOP	3 S	1110.4	1111	.7				D
	202	IZMI	24 R	1112	1116.2	15	45	10		
	1470	BERL	4 S/F	1116	1118.5	5	32			
	6100	KISV	2 S/F	1135.3	1136.5	2	4			
	237	TRST	41 F	1136.4	1136.6	.4	450			D
	202	IZMI	8 S	1136.5	1136.5	.6	460	200		
	3000	BERL	3 S	1136.5	1136.6	.5	26			
	1470	BERL	3 S	1138	1138.5	1	14			
	930	BORD	8 S	1138	1138.4	1	31	1		
	930	BORD	46 C	1159	1201.7	6	69	5		
	1470	BERL	4 S/F	1200	1202	4.5	67			
	536	ONDR	2 S/F	1200.8	1202	2	11	2.8		
	606	SGMR	3 S	1228.2	1238.5	14.8	365	110		
	536	ONDR	48 C	1230	1238	99	98	19		
	410	SGMR	6 S	1233.5	1238.8	11.3	70	21		
	808	ONDR	45 C	1234	1237	5.5	102	50		
	930	BORD	46 C	1234	1237.1	10	119	9		
	113	POTS	45 C	1253	1253.1	.7	280	30		
	930	BORD	45 C	1256	1256.9	1	18	2		
	930	BORD	45 C	1303	1303.3	.4	11	2		
	410	SGMR	6 S	1318.2	1324.2	12.6	55	17		
	930	BORD	45 C	1318	1319.3	3	36	3		
	606	SGMR	3 S	1321.2	1324.8	7.3	199	60		
	245	SGMR	6 S	1326	1326.5	4.8	17	5		
	606	SGMR	45 C	1330.8	1333.8		72.4			
	606	SGMR	45 C	1330.8	1332.2	12.1	54	21.7		
	410	SGMR	7 C	1332	1335.7		38.2			
	410	SGMR	7 C	1332	1333	13.4	35.6	11.5		
	245	SGMR	6 S	1335.5	1336.5	9.9	6.3	1.9		
	7000	SAOP	21 GRF	1426						
	7000	SAOP	1 S	1426	1437.6					D
	7000	SAOP	21 GRF	1426						
	7000	SAOP	1 S	1426						
	9400	HUAN	3 S	1643.6	1649.5	5.9	13.9	3.1		L
	7000	SAOP	3 S	1646.8	1647.4	.4				D
	2800	OTTA	1 S	1839	1840	2	3.4	1.7		
	7000	SAOP	3 S	1840.6	1842.1	.4				D
	2800	OTTA	8 S	1937.5	1937.8	.5	3.4	1.7		
	410	SGMR	6 S	2031.2	2033.3	7.8	208	62		
	245	SGMR	48 GB	2031.4	2032.1	7.2	2700	810		
	606	SGMR	3 S	2031.5	2032.3	4.1	60	18		
	1420	BOUL	3 S	2031.5E	2032	2.5D	26	9		
	2800	OTTA	4 S/F	2031	2032.2	3	78	26		
	2695	BOUL	4 SF	2032	2033.5	5.5	32	11		
	2800	OTTA	29 PBI	2034	2034	4	2.4	1.2		
	2695	BOUL	31 ABS	2037.5	2044.5	11 D	-5	-2		
4	5730	IRKU	47 GB	0542	0546.5	7	172			L
	8800	MANI	3 S	0545.2	0546.5	2	54.5	36.3		
	606	MANI	3 S	0545.3	0546.9	2.9	65.4	43.6		
	4995	MANI	3 S	0545.4	0546.8	3.6	26	17.3		
	2695	MANI	1 S	0545.5	0546.7	3	6.8	4.5		
	1415	MANI	1 S	0545.7	0546.7	2.6	6.7	4.5		
	113	POTS	6 S	0802.4	0803.5	5.7	280	2		
	9100	GORK	21 GRF	0802.9	0810.6	10.2	5.6	2.5		
	6100	KISV	4 S/F	0802	0803.5	3	6			
	100	GORK	8 S	0803.6	0803.9	.7	120 D			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	9100	GORK	1	S	0803.7	0803.9	.5	9.5	4.5		
	15000	KISV	2	S/F	0803	0803.7	2	7			
	6100	KISV	4	S/F	0806.5	0808.5	5	7			
	9100	GORK	1	S	0807.5	0808.9	1.1	9.5	4.5		
	260	ONDR	44	NS	0820 E		246 D	195	9		
	200	GORK	44	NS	0824 E		180		5		
	245	SGMR	44	NS	1201 E	1442	544 D	29.1			3
	410	SGMR	44	NS	1201 E	1749.5	544 D	219			3
	606	SGMR	44	NS	1201 E	1904	544 D	261			3
	6100	KISV	2	S/F	0841	0842	2	2			
	6100	KISV	32	ABS	0910	0926	27	-5			
	234	POTS	45	C	0922.2	0922.3	.4	120	25		
	8400	BERN	45		0934.1	0938.2	7	27			11R
	8400	BERN	45		0934.1	0941.1	7	30			30R
	10400	BERN	45		0934.1	0938.2	7	19			
	10400	BERN	45		0934.1	0941.1	7	23			
	10400	BERN	45	C	0934.1	0941.1	7	8	23		
	10400	BERN	45	C	0934.1	0938.2	7	6	19		
	8400	BERN	45	C	0934.1	0941.1	7	11	30		
	8400	BERN	45	C	0934.1	0938.2	7	10	27		
	29	UPIC	45	C	0936.9	0937.9	1.4				
	113	POTS	6	S	0937.2	0938.1	7.7	2800	50		
	234	POTS	6	S	0937.3	0938.1	3.8	120	1		
	33	UPIC	45	C	0937.3	0938.2	1.4				
	100	GORK			0937.4	0938.3		150 D			
	100	GORK	41	F	0937.4	0937.6	4.6	150 D			
	100	GORK			0937.4	0941.2		150 D			
	200	GORK	41	F	0937.5	0938 U	8.9	30 D			
	200	GORK			0937.5	0946.1		28			
	200	GORK			0937.5	0940 U		30 D			
	3100	CRIM	1	S	0937.5	0938	2	6	2		
	202	IZMI	41	F	0937.5	0938.5	5	200			
	3000	BERL	48	C	0937.5	0940.8	5.5	10			
	9500	BERL	48	C	0937.5	0941	5.5				
	6100	KISV			0937	0938.5					
	6100	KISV	42	SER	0937	0941.2	7	12			
	2950	GORK	23	GRF	0938	0942	6.5	4.7	2.4		
	950	GORK			0938	0941.1		13			
	950	GORK	45	C	0938	0938.9	4.2	4.7			
	9100	GORK	41	F	0938.1	0938.4	5.1	21			
	9100	GORK			0938.1	0941		30			
	237	TRST	41	F	0938.1	0938.2	.9	315			D
	408	TRST	7	C	0938.1	0938.4	1.7	98			
	10715	DWIN	45	C	0938	0941	5	20	10		
	2650	DWIN	45	C	0938	0941	5	10	5		
	15000	KISV			0938	0938.5		13			
	15000	KISV	42	SER	0938	0941	5	24			
	3100	CRIM	1	S	0940.3	0940.8	2.3	11	4		
	408	TRST	7	C	0940.3	0941.2	2.5	88			
	650	GORK	4	SF	0940.4	0941	2 U	74	16		
	930	BORC	3	S	0940	0941.2	3	18	3		
	408	TRST	7	C	0943	0943.3	.7	62			
	536	ONDR	41	F	1034 E	1102	70	58	19		
	408	TRST	41	F	1036.9	1038.2	2.8	40			
	9400	HUAN	4	S/F	1053.6	1057.8	4.8	47	15.1		R
	650	GORK	4	SF	1054	1055.6	4.8	37	9.5		
	3100	CRIM	3	S	1054	1055.2	5	24	8		
	29	UPIC	46	C	1054.1	1055.3	3.9				
	33	UPIC	46	C	1054.2	1055.1	3.9				
	10400	BERN	46		1054.3	1055.6	9	34			
	8400	BERN	46		1054.3	1055.6	9	42			D
	10400	BERN	46	C	1054.3	1055.6	9	11	34		
	8400	BERN	46	C	1054.3	1055.6	9	16	42		
	9500	BERL	4	S/F	1054.5	1055.4	3.5				
	3000	BERL	4	S/F	1054.5		3.5				
	2950	GORK	45	C	1054.6	1055.6	3.6	34			
	2950	GORK			1054.6	1056.8		11	8.8		
	9100	GORK	4	SF	1054.7	1055.6	3.4	41.5			
	930	BORC	45	C	1054.8	1055.4	3.2	32	4		
	9100	ARCE	45	C	1054.9	1055.8	5				
	9100	ARCE			1054.9	1055.8	1.8				
	10715	DWIN	45	C	1054	0955	5	30	10		
	2650	DWIN	45	C	1054	0955	5	30	10		
	6100	KISV	42	SER	1054	1057	12	15			
	6100	KISV			1054	1104.7		4			
	6100	KISV			1054	1102		5			
	202	IZMI	45	C	1055	1055	1.2	1000	500		
	237	TRST	41	F	1055	1055.6	.9	4470			D
	408	TRST	45	C	1055	1055.2	1.1	98			
	200	GORK			1055	1057.7		110			
	200	GORK	45	C	1055	1055 U	5	30 D			
	234	POTS	2	S/F	1055	1055.3	3.9	5600	100		
	113	POTS	6	S	1055.1	1102	7	800	14		
	100	GORK			1055.1	1102.4		130 D			
	100	GORK			1055.1	1057.3		1700			

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DAY OF MONTH	FREQUENCY	STATION	TYPE		STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
					UT	UT	MINUTES	PEAK	MEAN		
1	100	GORK	45	C	1055.1	1056	7.6	180			
	202	IZMI	23	GRF	1056.2	1057.5	2	200	100		
	7000	SAOP	46	C	1056.2	1057.6		11			11R
	7000	SAOP	41	F	1056.2						
	9100	ARCE			1056.7	1057	3.2				
	29	UPIC	4	S/F	1101.5	1102	.8				
	33	UPIC	4	S/F	1101.5	1101.5	1.2				
	408	TRST	42	SER	1101.5	1102.5	1.1	94			
	408	TRST	49	GB	1103.2	1111.5	110	120 D			
	408	TRST			1103.2	1158.8		1600			
	408	TRST			1103.2	1151.1		710			
	408	TRST			1103.2	1126.9		130			
	113	POTS	6	S	1135.3	1139.1	3.7	150	1		
	536	ONDR	48	C	1144	1159.2	44 D	208	188		
	930	BORD	3	S	1215	1215.2	.4	11	3		
	930	BORC	42	SER	1225	1228.8	5	40	4		
	113	POTS	2	S/F	1227.4	1227.5	.4	110	12		
	8400	BERN	3		1227.6	1229	3.5	35			0
	10400	BERN	3		1227.6	1229	3.5	23			
	10400	BERN	3	S	1227.6	1229	3.5	8	23		
	8400	BERN	3	S	1227.6	1229	3.5	13	35		
	9400	HUAN	3	S	1227.8	1230.3	2.5	21.8	8.8		0
	3000	BERL	3	S	1228	1228.8	3	13			
	9500	BERL	3	S	1228	1228.5	2				
	234	POTS	45	C	1228.1	1228.1	.5	210	20		
	237	TRST	41	F	1228.1	1228.2	.6	295			0
	9100	ARCE	3	S	1228.3	1228.9	1.1				
	10715	OWIN	1	S	1228	1229	2	20	10		
	2650	OWIN	1	S	1228	1229	3	15	5		
	7000	SAOP	3	S	1229.2	1330.6	.7				18L
	9100	ARCE	29	PBI	1229.4		3.8				
	930	BORC	41	F	1234	1234.5	2	18	3		
	10400	BERN	45	C	1249.1	1256.3	8	6	16		
	10400	BERN	45	C	1249.1	1250.1	8	5	13		
	10400	BERN	45		1249.1	1250.1	8	13			
	10400	BERN	45		1249.1	1256.3	8	16			
	8400	BERN	45		1249.3	1250.1	8	21			0
	8400	BERN	45		1249.3	1256.3	8	23			0
	8400	BERN	45	C	1249.3	1256.3	8	9	23		
	8400	BERN	45	C	1249.3	1250.1	8	8	21		
	930	BORD	45	C	1249.4	1252	5.1	64	5		
	3000	BERL	3	S	1249.5		3				
	9500	BERL		S	1249.5	1253.2	4.5				
	9100	ARCE	1	S	1249.8	1250.4	2				
	10715	OWIN	45	C	1249	1253	6	15	5		
	2650	OWIN	1	S	1249	1250	3	15	5		
	7000	SAOP	1	S	1251.7	1252.3					41L
	113	POTS	2	S/F	1252.1	1253	1.1				
	9100	ARCE	1	S	1252.1	1253.5	4				
	7000	SAOP	1	S	1254.6	1255.3					42R
	234	POTS	8	S	1306.1	1306.1	.1	500	175		
	113	POTS	6	S	1306.1	1311	4.8	170	2		
	237	TRST	5	S	1306.2	1306.2	.1	785	35		0
	606	SGMR		GB	1314.5	1354.5		308			5
	606	SGMR	47	GB	1314.5	1319.5	55.5	4236	1694		5
	1415	SGMR	3	S	1314.5	1319.6	10.5	264	106		5
	245	SGMR	49	GB	1314.5	1320.5	16.5	6363	2545		5
	404	SGMR	49	GB	1314.5	1321	16.5	1284	514		5
	7000	SAOP	3	S	1317.6	1322.3	.2				19L
	408	TRST	49	GB	1317.8	1320.3	4				
	10400	BERN	8	S	1318.4	1320.3	12	63	185		
	8400	BERN	8	S	1318.4	1320.3	12	78	208		
	8400	BERN	8		1318.4	1320.3	12	208			11L
	10400	BERN	8		1318.4	1320.3	12	185			
	2695	SGMR	3	S	1318.5	1319.5	1.5	139	55.6		5
	8800	SGMR	3	S	1318.5	1319.5	1.5	94	37.6		5
	4995	SGMR	3	S	1318.5	1319.5	1.5	82.1	32.8		5
	15400	SGMR	43	S	1318.5	1319.5	1.5	184	73.6		5
	234	POTS	45	C	1319	1320.1	4	15000	625		
	237	TRST			1319.1	1320.3		12920			0
	237	TRST	47	GB	1319.1	1319.3	3.4	1070			0
	237	TRST			1319.1	1322.2		1375			2R
	237	TRST			1319.1	1321.5		2050			0
	33	UPIC	4	S/F	1319.7	1319.8	1.5				
	29	UPIC	4	S/F	1319.8	1320	1.1				
	9400	HUAN	8	S	1320	1321	1	189.8	68.2		L
	3000	BERL	3	S	1320	1320	5	92			
	113	POTS	45	C	1320	1320.1	3.1	39000	2000		
	9500	BERL	3	S	1320	1320.1	3.5				
	9100	ARCE	3	S	1320.1	1320.4	1.4				
	2800	OTTA	3	S	1320	1320.3	2	105	30		
	10715	OWIN	1	S	1320	1320.5	2	140	30		
	2650	OWIN	1	S	1320	1320	5	115	30		
	2800	OTTA	8	S	1431.8	1432	.7	3.4	1.7		
	7000	SAOP	20	GRF	1453.5	1511					11L

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA 22 GRF		1458	1508	40	4	1.9		
	930	BORD 41 F		1501.8	1501	.6	28	3		
	930	BORD 6 S		1508.8	1508.8	.1	67	1		
	7000	SAOP 46 C		1541	1550.5					20L
	4995	BOUL 4 SF		1546.5	1547.5	4	25	8		
	2695	SGMR 3 S		1547.1	1548	2.2	72.6	29		5+SWF
	2800	OTTA 4 S/F		1547.5	1548.3	3.5	48	18.6		
	606	SGMR 47 GB		1547.7	1548.8	2.2	570	228		5+SWF
	1420	BOUL 3 S		1547 D	1548	2 D	32	11		
	930	BORD 46 C		1547	1548.6	4	303	10		
	2800	OTTA 1 S		1719	1720	3	3	1.5		
	7000	SAOP 1 S		1743.4	1744.5					43R
	4995	BOUL 4 SF		1842.5	1843.5	6.5	60	20		
	1420	BOUL 3 S		1843.5D	1844.5	1.5D	55	18		
	2800	OTTA 4 S/F		1843.5	1844.5	6.5	74	12		
	606	SGMR 3 S		1843.8	1844.3	5.2	52.2	20.9		
	15400	SGMR 3 S		1844.1	1844.3	4.9	43.6	17.4		5
	245	SGMR 48 GB		1844.2	1844.4	4.8	267	107		
	410	SGMR 48 GB		1844.3	1844.4	4.7	631	252		
	4995	SGMR 3 S		1844.4	1844.8	4.6	31.5	12.6		
	2695	SGMR 3 S		1844.4	1844.8	4.6	10.7	42.8		
	8800	SGMR 3 S		1844.4	1844.8	4.6	68	27.2		
	1415	SGMR 3 S		1844.6	1844.5	4.4	99	40		
	7000	SAOP 41 SF		1845	1846.5	.5				18L
	1420	BCUL 29 PBI		1845	1845	3.5D	19	6		
	2695	BCUL 3 S		1845 D	1845.5	1 D	89	30		
	2695	BOUL 29 PBI		1846	1846	1.5D	11	4		
	700	SYDN 45 C		2359.8	0000.5	1.3				
5	1415	SYDN 2 S		0017.1	0017.9	1.3				
	700	SYDN 2 S		0017.2	0017.9	1.2				
	2950	GORK 21 GRF		0734.3	0739.8	44	15	7		
	6100	KISV		0734	0812.5		15			
	6100	KISV		0734	0750		13			
	6100	KISV 21 GRF		0734	0737.3	76	19			
	3100	CRIM 3 S		0735	0736.5	8	32	11		
	950	GORK		0735.4	0737.2		13			
	950	GORK 46 C		0735.4	0736.5	4.7	12			
	15000	KISV		0735	0739		7			
	15000	KISV 21 GRF		0735	0756	45	11			
	15000	KISV		0735	0816		5			
	200	GORK 43 NS		0736		144		5		
	260	ONDR 44 NS		0820 E		337 D	22			
	410	SGMR 44 NS		1202 E	1941.2	543 D	39.3			3G
	245	SGMR 44 NS		1202 E	1939.2	543 D	61.8			3G
	2950	GORK 3 S		0736.1	0736.9	4.1	21	10		
	200	GORK 45 C		0736.6	0737.8	2.3	40 D			
	9100	GORK 21 GRF		0736.6	0754.2	206	15	10		
	200	GORK		0736.6	0739.2		33			
	3100	CRIM 3 S		0745	0750	17	21	7		
	2950	GORK 1 S		0748.4	0750.2	4.7	6.8	3.4		
	234	POTS 45 C		0752.1	0752.4	1.2	350	15		
	200	GORK 8 S		0826.6	0826.9	.5	36			
	3100	CRIM 25 R		0911	1048		17			
	6100	KISV 4 S/F		0919	0919.5	6	5			
	950	GORK 3 S		0920.2	0920.3	.8	19	9		
	650	GORK 1 S		0920.2	0920.3	.8	11	5		
	9100	GORK 1 S		0920.3	0920.8	1.5	4	2		
	536	ONDR 2 S/F		0920.3	0920.3	1	12	4		
	808	ONDR 3 S		0920	0920	.3	25			
	930	BORD 45 C		0920	0920	.6	55	3		
	6100	KISV		0942	0947.5		6			
	6100	KISV		0942	0944.5		5			
	6100	KISV 40 F		0942	0945.3	1.3	12			
	15000	KISV 8 S		0943.3	0945.2	3	6			
	10400	BERN 21 GRF		0943.9	0945.2	8	6	16		
	10400	BERN 21		0943.9	0945.2	8	16			
	9100	ARCE 21 GRF		0944.3	0948.4	7				
	536	ONDR 45 C		0944.5	0945.2	3	36	4.2		
	930	BORD 45 C		0944.5	0945.2	4.5	38	6		
	9100	GORK 1 S		0944.5	0945.6	5.2	16	8		
	2950	GORK 21 GRF		0944.5	0951.9	17	3			
	1470	BERL S		0944.7	0945.1	2.3	5.8			
	9500	BERL 4 S/F		0944.7	0945.1	5.3	15			
	3000	BERL 4 S/F		0944.8	0945.2	.7	9			
	2950	GORK 1 S		0944.8	0945.5	1.3	8	4		
	950	GORK 4 SF		0945	0947	3.8	21			
	650	GORK 40 F		0945	0946.5	4	95			
	3100	CRIM 1 S		0945	0945.5	1	8	3		
	9100	ARCE 1 S		0945.1	0945.3	.5				
	808	ONDR 46 C		0945	0946.2	3.5	48	8.6		
	2950	GORK 1 S		0946.5	0946.8	.9	2.8	1.4		
	6100	KISV 3 S		1110	1111	5	2			
	3100	CRIM 1 S		1137	1138	1.5	3	1		
	536	ONDR 2 S/F		1137.8	1138.7	1	14			

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				UT	UT	MINUTES	PEAK	MEAN		
	3000	BERL	3 S	1204.5	1205.2	3.5	9.7			
	3100	CRIM	1 S	1204.5	1205	1	9	3		
	536	ONDR	4 S/F	1204.8	1206.3	4	36	1.8		
	1470	BERL	3 S	1205	1205.4	3	8.9			
	930	BORC	8 S	1205.6	1205.6	1	13	2		
	2650	OWIN	1 S	1205	1205.5	1	10	5		
	930	BORD	41 F	1230.5	1230.5	1.5	13	2		
	536	ONDR	41 F	1317.2	1317.6	4.5	28			
	2800	OTTA	1 S	1422.2	1422.5	1	9.2	4		
	2650	OWIN	1 S	1422	1422.5	1	10	5		
	2650	OWIN	1 S	1425	1426	2	15	7		
	2800	OTTA	4 S/F	1425	1425.7	1.5	16.4	8		
	930	BORD	45 C	1529.4	1529.5	.2	61	2		
	410	SGMR	6 S	1852.8	1853.2	1.9	14.5	4.4		
	245	SGMR	6 S	1854.8	1855.1	.7	6	1.8		
	606	SGMR	3 S	1855.2	1855.7	1.2	34.2	10.3		
	2800	OTTA	20 GRF	1935	1943	20	2.4	1.2		
	245	SGMR	6 S	2011.2	2012.4	1.6	2.8	0.8		
	606	SGMR	3 S	2011.4	2012.1	1.8	53.6	16.1		
	410	SGMR	6 S	2011.8	2012.4	1.7	39.8	11.9		
	606	SGMR	45 C	2040.1	2040.9	3.1	17.1	8.2		
	606	SGMR	45 C	2040.1	2042.1		27.4			
	410	SGMR	7 C	2040.2	2040.8	2.8	22.5	9.7		
	410	SGMR	7 C	2040.2	2042.5		32.4			
	606	SGMR	3 S	2103.4	2103.8	1.1	98.8	29.6		
	245	SGMR	6 S	2103.8	2104	.7	32.5	97.5		
	410	SGMR	6 S	2104.7	2104.9	.3	75.9	22.8		
	1415	SYDN	2 S	2330.2	2330.5	.7				
6	5730	IRKU	20 GRF	0319.5	0324.1	12	24	12		L
	5730	IRKU	20 GRF	0433.5	0439.5	16	26	9		L
	5730	IRKU	20 GRF	0605	0610	10	32	16		L
	2950	GORK	20 GRF	0736.8	0739.8	12.3	4	2		
	260	ONDR	44 NS	0820 E		340 D	25			
	245	SGMR	44 NS	1203 E	1512.8	542 D	32.9			
	930	BORC	41 F	0903	0903.5	.5	25	1		
	3000	BERL	20 GRF	1005	1018	55	7.1			
	650	GORK	1 S	1010.6	1012.9	6.2	2.5			
	9500	BERL	20 GRF	1010	1040	55	7.4			
	950	GORK	3 S	1011	1012.9	2.2	3			
	2950	GORK	20 GRF	1011.6	1015.7	10	7.4	3.8		
	9100	GORK	20 GRF	1012.3	1039.7	43.4	5.4	2		
	2800	OTTA	20 GRF	1505	1550	170	4.2	2.2		
	9400	HUAN	20 GRF	1540.7	1606.3	15.6	7.2	2.5		O
	2800	OTTA	20 GRF	1843.5	1856	40	4.4	2.2		
	410	SGMR	7 S	1843.8	1844.3	3.1	38.9	77.8		
	245	SGMR	6 S	1843.9	1844.6	1.2	18.2	36.4		
	606	SGMR	3 S	1843.9	1844.1	.5	22.4	4.5		
	2800	OTTA	1 S	1939	1940	2	3.4	1.7		
	2695	PENT	240 R	2018	2045	27	2.8	1.4		
	4995	BOUL	2 SF	2102.5	2104.5	6.5	10	3		
	2695	PENT	4 S/F	2103	2105	5	20	9.6		
7	6100	KISV	45 C	0721	0722.5	2	3			
	260	ONDR	44 NS	0810 E		345 D	219 D			
	200	GORK	43 NS	0830		180		5		
	245	SGMR	44 NS	1204 E	1708.2	541 D	555			
	410	SGMR	44 NS	1204 E	1708.2	541 D	268			
	234	POTS	45 C	0903.5	0904.5	.9	1400	25		
	237	TRST	41 F	0903.8	0904.1	1	2450			O
	408	TRST	42 SER	0904	0904.1	.7	190			
	3100	CRIM	25 R	0907	1011		5			
	9100	GORK	21 GRF	0913.3	1005.2	91	41	18		
	930	BORC	8 S	0919	0919	.1	33	1		
	234	POTS	45 C	0920.5	0942	25	560	160		
	6100	KISV	32 ABS	0948	0954	9	-1			
	536	ONDR	46 C	0955.5	0959	13	49	10.3		
	3000	BERL	4 S/F	0956.5	1001.5	34	43			
	3100	CRIM		0956.5	1001.5		33	11		
	3100	CRIM	41 F	0956.5	0959.5	11	26	9		
	3100	CRIM		0956.5	1005.1		21	7		
	3100	CRIM		0956.5	1004		21	7		
	950	GORK	46 C	0957	1000.8	8.8	33			
	950	GORK		0957	1002.2		85			
	1470	BERL	4 S/F	0957	1002	33	32			
	9500	BERL	4 S/F	0957	1001.3	41	57			
	2950	GORK	46 C	0957.2	1001.2	10.3	37			
	2950	GORK	29 PBI	0957.2	1007.5	12.6	7.5			
	2950	GORK		0957.2	1001.9		35			
	650	GORK		0957.3	1002.1		40			
	650	GORK	46 C	0957.3	1001	12.1	43	10.5		
	408	TRST	47 GB	0957.4	0958.8	9	99			
	2650	OWIN	45 C	0957	1002	11	35	15		
	930	BORD	45 C	0957	1002.3	8	75	18		
	6100	KISV		0957	1000.7		34			

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				UT	UT	MINUTES	PEAK	MEAN		
1	6100	KISV	48 C	0957	1001.5	33	54			
	6100	KISV		0957	1005.2		28			
	6100	KISV		0957	1003.5		20			
	15000	KISV	45 C	0957	1000.3	33	41			
	808	ONDR	45 C	0957	1001.7	13	55	18.3		
	127	TORN	42 SER	0958	1001.9	34	190			
	127	TORN		0958	1009.7		410			
	127	TORN		0958	1004.9		75			
	237	TRST	47 GB	0958	1000.9	4.5	1550			2L
	237	TRST		0958	1001.3		2770			0
	10400	BERN	45 C	0958.2	1001.6	34	18	52		
	10400	BERN	45	0958.2	/001.5	34	52			
	9100	GORK		0958.3	1001.6		59			
	9100	GORK	46 C	0958.3	1000.7	5.2	39			
	10715	DWIN	45 C	0958	1002	30	40	15		
	234	POTS	45 C	1000.1	1001.4	2.1	1400	175		
	200	GORK		1000.3	1008		120			
	200	GORK	45 C	1000.3	1001.1	2.4	36			
	202	IZMI	45 C	1000.4	1001.7	1.7	1500	700		
	113	POTS	2 S/F	1000.4	1001.5	11	1400	30		
	100	GORK		1001	1011		3500			
	100	GORK		1001	1009.6		3500			
	100	GORK	46 C	1001	1002 U	12	110 D			
	237	TRST	41 F	1026.6	1026.7	.4	145			0
	237	TRST	41 F	1149	1149.1	.4	1010			2L
	234	POTS	45 C	1149	1149	.2	210	55		
	237	TRST	41 F	1200.8	1200.8	.1	113			0
	234	POTS	2 S/F	1208.2	1209.1	1.3	420	12		
	237	TRST		1208.4	1209.2		1810			0
	237	TRST	42 SER	1208.4	1208.9	1.4	1215			0
	234	POTS	6 S	1229.4	1235.2	6	1100	15		
	237	TRST		1229.7	1235.5		1600			0
	237	TRST		1229.7	1234.5		265			0
	237	TRST		1229.7	1230.7		1255			0
	237	TRST	42 SER	1229.7	1229.7	6.3	375			0
	113	POTS	45 C	1235.2	1235.2	.3	750	200		
	127	TORN	40 F	1330 U	1408.6	50 D	20			
	237	TRST	41 F	1351.4	1351.4	.2	200			0
	237	TRST	41 F	1354	1354.2	.3	615			0
	2800	OTTA	20 GRF	1635	1720	145	5.4	2.7		
	9400	HUAN	4 S/F	1931.4	2039.3	67.9	59.5	25.2		L
	4995	BCUL		1935	1943.5		77	26		
	4995	BOUL	45 C	1935	1948.5	22	88	29		
	7000	SAOP	46 C	1939	1949					22L
	1420	BOUL	21 GRF	1940.5	1945	16 D	28	9		
	410	SGMR	6 S	1940.5	1942.5	22.5	70.5	21		
	2800	OTTA	4 S/F	1940	1944	18	97	35		
	245	SGMR	7 S	1941.2	1945.5	21.8	421	126		
	606	SGMR	3 S	1941.4	1942.8	16.1	108	32		
	2695	SGMR	20 GRF	1942	1945	16	5.5	2		
	2695	BOUL	21 GRF	1942 D	1945	10 D	104	35		
	2695	BCUL		1942 D	1950.5		68	23		
	2695	BOUL	29 PBI	1952	1952	5 D	34	11		
	2800	OTTA	30 PBI	1958	1958	110	10.8	5.4		
	2695	PENT	8 S	2033.9	2034.3	.7	1.6	.8		
	2695	PENT	8 S	2035	2035.2	.6	4	2		
	35000	NAGO	5 S	2342	2345	8	25			
	1415	SYDN	4 S	2343.1	2344.5	6.7				
	700	SYDN	45 C	2343.3	2345.6	6.5				
	35000	NAGO	20 GRF	2350	2353	20	19			
8	200	GORK	43 NS	0621		309		5		
	260	ONDR	44 NS	0830 E		327 D	24			
	127	TORN	43 NS	0910 U	1051.5	310 D	120	15		V2
	100	GORK	43 NS	0950		100 E		10		
	410	SGMR	44 NS	1205 E	1757.1	540	11.6			
	245	SGMR	44 NS	1205 E	1439.3	540	32.5			
	6100	KISV	21 GRF	0917	0938	108	14			
	3100	CRIM	21 GRF	0920	0942		10			
	2950	GORK		0927.6	0937.5		9.7			
	2950	GORK	46 C	0927.6	0936.1		10.3			
	2950	GORK	21 GRF	0927.6	0938.5	49.4	13			
	9100	GORK	20 GRF	0928.3	0940.8	41.3	12	5.5		
	234	POTS	45 C	0934	0935	.1	220	60		
	950	GORK		0934.7		6.1	3 D			
	3100	CRIM	3 S	0935	0937.5	6	23	8		
	1470	BERL	3 S	0935.5	0937.7	7	9.2			
	3000	BERL	4 S/F	0935.5	0937.6	4.5	14			
	2650	DWIN	45 C	0936	0938	4	15	10		
	536	ONDR	2 S/F	0943	0945.3	4.5	20	3.4		
	113	POTS	45 C	1000	1059	170	67	17		
	536	ONDR	2 S/F	1002.4	1002.4	2	17	2.1		
	7000	SAOP	20 GRF	1044						0
	7000	SAOP	20 GRF	1144.5						29L
	6100	KISV	20 GRF	1145	1149	10	5			

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	536	ONDR	4 S/F	1251	1251.3	2.5	52	18		
	2800	OTTA	20 GRF	1455	1505	25	2.2	1.1		
	2800	OTTA	24 R	1530	1550	20	3.8	2.2		
	2800	OTTA	27A RF	1530		230	3.8	3.4		
	930	BORD	45 C	1530	1530.4	.6	13	2		
	2800	OTTA	24P R	1550		180	3.8			
	2800	OTTA	8 S	1608.8	1609	.5	8.8	4.4		
	2800	OTTA	8 S	1616.5	1616.8	.5	7.6			
	9400	HUAN	20 GRF	1818.8	1916.2	57.4	10.3	7.9		D
	2800	OTTA	26 FAL	1850	1920	30	-3.8	-1.9		
	2800	OTTA	32 ABS	1935	1950	30	-3	-1.8		
	2695	PENT	1 S	2019	2020	4	5.4	2.5		
	2695	PENT	20 GRF	2030	2033	25	3.2	1.6		
9	6100	KISV	21 GRF	0623	0627	37	4			
	200	GORK	43 NS	0730		240		5		
	260	ONDR	44 NS	0853 E		297 D	24			
	127	TORN	43 NS	1050 U	1217.9	150 U	56	1.3		V1
	410	SGMR	44 NS	1206 E	1453.3	539 D	15.8			
	245	SGMR	44 NS	1206 E	1453.3	539 D	84			
	200	GORK	41 F	0819.2	0821	12.8	50 D			
	200	GORK		0819.2	0828.5		50 D			
	200	GORK		0819.2	0824.4		29			
	113	POTS	2 S/F	0847	0848.3	1.7	1500	115		
	200	GORK	8 S	0847.8	0848.5	1.2	40			
	100	GORK	8 S	0848.4	0848.6	.9	130 D			
	200	GORK	8 S	1038.1	1038.5	.8	40			
	100	GORK	41 F	1040.3	1040.4	2.5	120			
	100	GORK		1040.3	1041.6		160			
	7000	SAOP	4 S/F	1058	1101	.7				30L
	8400	BERN	3	1058.1	1101	10	39			11L
	10400	BERN	3	1058.1	1101	10	27			
	10400	BERN	3 S	1058.2	1101	10	9	27		
	8400	BERN	3 S	1058.2	1101	10	15	39		
	9100	GORK	21 GRF	1059	1102.3	18.8	11	5		
	9500	BERL	3 S	1100	1101	1.5	23			
	3000	BERL	4 S/F	1100	1100.9	2	24			
	9100	GORK	1 S	1100.3	1101.1	1.7	26	13		
	1470	BERL	3 S	1100.5	1101.4	5.5	23			
	2800	OTTA	20 GRF	1420	1440	70 D	3			
	2800	OTTA	24 R	1535	1555	20	5	2.5		
	2800	OTTA	27 RF	1535		220	5	4.2		
	2800	OTTA	24P R	1555		150	5			
	9400	HUAN	20 GRF	1819.5	1852.5	32	8.7	3.1		D
	2800	OTTA	26 FAL	1825	1915	50	5	2.5		
10	35000	NAGO	20 GRF	0212	0226	40	8			
	200	GORK	44 NS	0630		300 D		50		
	100	GORK	44 NS	0630 E		300 D		10		
	202	IZMI	43 NS	0700		300	80			
	127	TORN	44 NS	0700 E	1226.3	440 D	200	18		V2
	260	ONDR	44 NS	0853 E		297 D	148	10		
	606	SGMR	44 NS	1207 E	1316.5	538 D	24.8			5
	245	SGMR	44 NS	1207 E	2104	538 D	73	179.4		5
	410	SGMR	44 NS	1207 E	1749.2	538 D	2.6	25		5
	650	GORK	40 F	0639	0651.9	21	8			
	950	GORK	4 SF	0642.3	0642.7	10.5	5.7			
	2950	GORK	1 S	0821.7	0822.6	2.3	11	5		
	6100	KISV	45 C	0821	0828	9	7			
	6100	KISV		0821	0822.3					
	650	GORK	40 F	0824.9	0828	3.6	8			
	3000	BERL	4 S/F	0826.5	0828	2.5	24			
	9100	GORK	20 GRF	0826.9	0843.9	36	7.5	2.5		
	950	GORK	1 S	0827	0828	1.6	5	2.5		
	1470	BERL	3 S	0827	0827.9	2	16			
	2950	GORK	3 S	0827.3	0828	1.4	20	10		
	29	UPIC	4 S/F	0915.1	0915.3	.7				
	33	UPIC	4 S/F	0915.2	0915.4	.8				
	234	POTS	45 C	1045.1	1046	1.6	700	175		
	237	TRST	47 GB	1045.3	1046.1	1.4	1465			10L
	113	POTS	45 C	1045.4	1046.2	1.4	1250	90		
	650	GORK	1 S	1045.8	1046.5	1.1	2.5			
	950	GORK	1 S	1046	1046.4	1.2	3.6	1.8		
	29	UPIC	45 C	1046	1046.6	2				
	33	UPIC	45 C	1046	1046.6	1.6				
	408	TRST	42 SER	1059.2	1059.6	.7	150			
	200	GORK	8 S	1111.3	1111.7	.7	2100			
	200	GORK	8 S	1128.7	1129.1	1	2000			
	7000	SAOP	20 GRF	1239.6	1242.4					D
	237	TRST	47 GB	1418.1	1418.7	1.6	378			11R
	2800	OTTA	24 R	1505	1525	20	3.8	2		
	2800	OTTA	27A RF	1505		225	3.8	3.6		
	2800	OTTA	24P R	1525		191	3.8			
	7000	SAOP	20 GRF	1540.6	1545					D
	9400	HUAN	20 GRF	1802	1842.5	40.5	17.2	9.5		D

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	2800	OTTA 22	GRF	1805	1818.5	30	5.6	2.2		
	2800	OTTA 26	FAL	1836	1850	14	-3.8	-1.9		
	9400	HUAN 20	GRF	1901	1935.1	34.1	12	6.3		O
	2800	OTTA 23	GRF	1930	2004	35 D	8.4			
	9400	HUAN 20	GRF	1944.8	2041.5	56.7	18.9	13.3		O
	410	SGMR 6	S	1946.1	1946.5	2.1	85.6	25.7		
	2800	OTTA 40	F	1946.2	1947.2	2	80			
	1420	BOUL 4	SF	1946.5E	1947.5	1.5D	53	18		
	606	SGMR 3	S	1946.6	1947.2	1.7	46.1	13.8		
	1415	SGMR 3	S	1946.6	1947.6	2.3	59	17.7		
	245	SGMR 48	GB	1946.7	1947.1	1.5	5110	1530		
	2695	SGMR 3	S	1946.8	1947.4	1.6	48	14.4		
	1420	BOUL 45	C	1947.5E	1948	1.5D	71	24		
	2695	MANI 3	S	2330.2	2340.1	46.7	98	32.7		
	1415	SYDN		2330.8	2308 U					
	1415	SYDN 48	GB	2330.8	2334.5U	49.2				
	1413	MANI 47	GB	2331	2334	38.2	2380	1585		
	700	SYDN		2332.5	2348.5U					
	700	SYDN 48	GB	2332.5	2337.5U	46.9				
	606	MANI 4	S/F	2333.2	2338.1	36	217.8	72.6		
	4995	MANI 3	S	2333.8	2350.8	50.4	69.9	23.2		
	8800	MANI 3	S	2338.5	2346.6	45.7	28.7	9.6		
	35000	NAGO 20	GRF	2345	2427	60	30			
11	700	SYDN 27	RF	0038.8	0054.1	21.7				
	5730	IRKU 45	C	0336	0338.4	24	10	5		R
	5730	IRKU		0336	0345		9			R
	5730	IRKU		0336	0342.7		18			L
	5730	IRKU		0336	0354.2		8			R
	5730	IRKU 3	S	0403	0409.2	14	17	4		L
	5730	IRKU		0553	0559		10			R
	5730	IRKU 20	GRF	0553	0555.5	10	9	4		R
	100	GORK 44	NS	0642 E		288 D		50		
	200	GORK 44	NS	0645 E		285 D		130		
	127	TORN 44	NS	0650 E	1155.6	450 D	870	90		V3
	202	IZMI 44	NS	0700		300	60			
	260	ONDR 44	NS	0830 E		318 D	168	27		
	408	TRST 44	NS	0927 E	1101.6	180 D	110			
	245	SGMR 44	NS	1208 E	1526.3	537 D	698			
	410	SGMR 44	NS	1208 E	1448.8	537 D	91			
	606	SGMR 44	NS	1208 E	1640.6	537 D	31			
	200	GORK		0736	0737.9		3600			
	200	GORK 46	C	0736	0736.6	2.6	1800			
	100	GORK		0736.2	0738.5		4400			
	100	GORK 46	C	0736.2	0736.6	2.8	4400			
	100	GORK		0752.1	0753.7		3100			
	100	GORK 46	C	0752.1	0752.5	2.2	4400			
	200	GORK		0819.2	0821.2		4750 D			
	200	GORK 41	F	0819.2	0819.4	26	4750 D			
	200	GORK		0819.2	0841.1		4700			
	200	GORK		0819.2	0828.2		2100			
	200	GORK		0819.2	0824.9		4500			
	6100	KISV 32	ABS	0847	0857	14	-7			
	6100	KISV 20	GRF	0922	0928	7	4			
	950	GORK 1	S	0927.5	0928.1	1.8	10	5		
	650	GORK 1	S	0927.7	0928	1.2	13	3		
	2950	GORK 1	S	0927.8	0928	.6	6.8	3.4		
	536	ONDR 3	S	0927.8	0927.8	.3	17			
	6100	KISV 32	ABS	0929	0940	15	-5			
	200	GORK		0943.9	0949		5000			
	200	GORK 46	C	0943.9	0944.3	7.4	2350			
	3100	CRIM 1	S	0946	0946.2	1	21	7		
	10400	BERN 8	S	0946	0946.4	1	4	12		
	8400	BERN 8	S	0946	0946.4	1	6	15		
	1470	BERL 3	S	0946	0946.5	1	25			
	9500	BERL 3	S	0946	0946.5	1	14			
	8400	BERN 8		0946	0946.3	1	15			O
	10400	BERN 8		0946	0946.3	1	12			
	650	GORK 1	S	0946.1	0946.3	.5	13	6		
	9100	GORK 1	S	0946.2	0946.3	.4	13	6.5		
	2950	GORK 3	S	0946.2	0946.4	.5	26	13		
	950	GORK 5	S	0946.2	0946.3	.6	18	9		
	536	ONDR 3	S	0946.3	0946.3	.2	24			
	930	BORD 3	S	0946	0946.4	1	29	2		
	202	IZMI 47	GB	0947.5	0950	5	1500	600		
	6100	KISV 8	S	0950.3	0951.3	1	9			
	15000	KISV 8	S	0951.2	0951.7	2	11			
	6100	KISV 21	GRF	1000	1019.3	20	8			
	6100	KISV		1000	1044.3		6			
	6100	KISV		1000	1004.3		7			
	3100	CRIM 20	GRF	1003	1054	108	15	5		
	536	ONDR 2	S/F	1026.6	1027.5	2	14	2		
	9400	HUAN 3	S	1145.8	1147.4	1.6	12.3	5.3		R
	930	BORD 8	S	1359.2	1359.2	.1	13	1		
	9400	HUAN 20	GRF	1415.5	1444.8	29.3	7	2		O

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	2800	OTTA	240 R	1553	1603	10	6	3		
	2800	OTTA	240 R	1720	1740	20	4.2	2.1		
	2800	OTTA	21 GRF	1750	1809	40	7.2	4.5		
	7000	SAOP	46 C	1751						25R
	2800	OTTA	1 S	1752	1754	4	5.8	2.9		
	9400	HUAN	47 CB	1855.5E	2049.5	114	1322	1017		R
	4995	BOUL	28 PRE	1909.5	1943.5	43	276	92		
	2695	BOUL	28 PRE	1909.5U	1944	43.5D	290	97		
	2800	OTTA	28 PRE	1910		22	19			
	8800	SGMR	47 GB	1918	2005.2		4150			SWF
	8800	SGMR	47 GB	1918	1946.1	107 D	280	1660		SWF
	2695	SGMR	47 GB	1918	2011.5		24600			SWF
	2695	SGMR	47 GB	1918	1946.1	107 D	333	9840		SWF
	35000	SGMR	47 GB	1918	2001	107 D	62.7	25.1		SWF
	1415	SGMR	47 GB	1918	2010.2		5930			SWF
	1415	SGMR	47 GB	1918	1956.5		3960			SWF
	1415	SGMR	47 GB	1918	1946	107 D	432	2370		SWF
	4995	SGMR	47 GB	1918	2007		2850			SWF
	4995	SGMR	47 GB	1918	1946.1	107 D	286	1140		SWF
	15400	SGMR	47 GB	1918	2007		2680			SWF
	15400	SGMR	47 GB	1918	1942.6	107 D	193	1070		SWF
	410	SGMR	49 GB	1922	2010.7		5160			SWF
	410	SGMR	49 GB	1922	1943	103 D	428	2060		SWF
	606	SGMR	47 GB	1923	2014.8		2060			SWF
	606	SGMR	47 GB	1923	1941.6	102 D	838	824		SWF
	245	SGMR	49 GB	1924	1943	101 D	240	1680		SWF
	245	SGMR	49 GB	1924	2012.2		4200			SWF
	2800	OTTA	47 GB	1934	2012	160	8320	1128		
	1420	BOUL	28 PRE	1940 E	1948.5	11 D	385	128		
	1420	BOUL		1951 E	1956.5		2744	915		
	1420	BOUL	47 GB	1951 E	2031.5	49 D	5121	1707		
	4995	BOUL	47 GB	1952.5	2006	39.5	2876	959		
	2695	BOUL	47 GB	1953 E	2013.5	43.5D	14332	4777		
	4995	BOUL	29 PBI	2032	2032	108 U	1524	508		
	2695	BOUL	29 PBI	2036.5	2036.5	118.5U	2149	716		
	1420	BOUL	29 PBI	2040	2040	114 D	1073	358		
	9400	HUAN	29 PBI	2049.5	2158.4	68.9	661.6	170.5		R
	1420	BOUL	47 GB	2057.5E	2101.5	14 D	1475	492		
	2695	PENT	29 PBI	2214	2214	40 D	20			
12	35000	NAGO	20 GRF	0138	0145	30	28			
	8800	MANI	3 S	0308.4	0309.2	6.4	80	26.6		
	4995	MANI	3 S	0308.7	0309.6	2.6	33.6	11.2		
	35000	NAGO	20 GRF	0308	0319	40	11			
	5730	IRKU	2 S	0308	0309.5	3	38	16		R
	700	SYDN	40 F	0341.8	0344.9	4.6				
	1415	SYDN	27 RF	0341.9	0349.9	9.9				
	5730	IRKU	2 S	0439	0439.3	1	46			R
	35000	NAGO	20 GRF	0522	0544	30	16			
	5730	IRKU		0544.8	0548.5		53			
	5730	IRKU	45 C	0544.8	0547.8	8	45	11		
	5730	IRKU		0544.8	0549.8		34			
	5730	IRKU		0544.8	0549.2		40			
	6100	KISV	4 S/F	0546	0548.2	13	11			
	6100	KISV	4 S/F	0639.3	0641	4	20			
	9100	GORK	30 PBI	0640.1	0641.6	18.5	9.6	3.5		
	9100	GORK	3 S	0640.1	0641.2	1	46	23		
	15000	KISV	8 S	0640.3	0641	3	24			
	8800	MANI	3 S	0640.4	0641	1	24	8		
	2695	MANI	3 S	0640.6	0640.8	1	10.2	3.4		
	4995	MANI	3 S	0640.6	0641.2	1.1	14	4.7		
	1415	MANI	8 S	0640.8	0641	.7	192.4	29.6		
	2950	GORK	1 S	0640.8U	0641.1	1	8.9	4		
	5730	IRKU	2 S	0640	0641.1	5	115	24		L
	5730	IRKU	1 S	0646.5	0649.2	5	24	8		L
	6100	KISV	1 S	0648.3	0649	5	3			
	9100	GORK	1 S	0648.3	0649.2	1.1	8	4		
	2950	GORK	1 S	0648.3	0649.1	1.7	8.9	4		
	202	IZMI	44 NS	0700		300	140			
	127	TORN	44 NS	0700 E	1334.1	440 D	1100	41		V2
	260	ONDR	44 NS	0823 E		334 D	135	40		
	408	TRST	44 NS	0857 E	1046.2	220 D	120			
	536	ONDR	43 NS	0910	1101	230	28			
	410	SGMR	44 NS	1209 E	1551	536 D	562			
	245	SGMR	44 NS	1209 E	1518.4	536 D	1550			
	9500	BERL	20 GRF	0826	0852	47	13			
	9100	GORK	20 GRF	0827.8	0849.1	45.2	13.5	6		
	6100	KISV	32 ABS	0910	0913.3	3	-4			
	6100	KISV	2 S/F	0913.3	0914.3	7	4			
	6100	KISV	1 S	0931	0932.1	2	2			
	10400	BERN	2 S/F	0939	1211.2	243	10	31		
	10400	BERN	2 S/F	0939	1039.3	243	22	66		
	8400	BERN	2 S/F	0939	1211.2	243	18	47		
	8400	BERN	2 S/F	0939	1031.5	243	25	67		
	8400	BERN	2	0939	1211.2	243	47			D

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	8400	BERN	2		0939	1031.5	243	67			O
	10400	BERN	2		0939	1211.2	243	31			
	10400	BERN	2		0939	1039.3	243	66			
	6100	KISV			1000	1006.3		18			
	6100	KISV			1000	1039		21			
	6100	KISV			1000	1012.3		10			
	6100	KISV			1000	1002		13			
	6100	KISV	21	GRF	1000	1031.4	95	30			
	9100	GORK	21	GRF	1001.9	1039	89	60			
	9500	BERL	22	GRF	1031	1031.8	201	62			
	9100	GORK	1	S	1002.2	1002.6	1	22	11		
	1470	BERL	20	GRF	1005	1113	125	9.8			
	15000	KISV	20	GRF	1020	1040	55	29			
	3000	BERL	22	GRF	1025	1107.5	110	18			
	9100	GORK	2	SF	1030	1032.1	4.6	24	10		
	29	UPIC	29	SER	1043.3	1101.3	19.6				
	33	UPIC	42	SER	1043.3	1101	19.4				
	7000	SAOP	45	C	1157.5	1211.2					17R
	9400	HUAN	3	S	1209.6	1213.6	4	20.5	10.2		R
	9400	HUAN	29	PBI	1213.6	1249.5	35.9	10.2	6.1		R
	7000	SAOP	20	GRF	1308.4						17R
	9400	HUAN	21	GRF	1400.1	1427.6	27.5	8.5	3.6		O
	7000	SAOP	45	C	1410	1517					15R
	9400	HUAN	3	S	1410.6	1411.7	1.1	27.3	8.8		R
	9400	HUAN	3	S	1412.8	1415	2.2	13.6	6.6		R
	9400	HUAN	3	S	1418.7	1419.7	1	17.1	6.8		R
	2800	OTTA	23	GRF	1420	1625	285	46			
	9400	HUAN	28	PRE	1430.5	1511.3	40.8	25.6	10.8		R
	2800	OTTA	1	S	1432	1433	4	3.8	1.7		
	9400	HUAN	45	C	1511.3	1520.4	9.1	444.6	186.2		R
	8800	SGMR	45	C	1512	1517.2		474			
	8800	SGMR	45	C	1512	1513.3	29	263	190		
	2695	SGMR	45	C	1512	1517.2		277			
	2695	SGMR	45	C	1512	1513.3	29	29.5	111		
	15400	SGMR	45	C	1512	1513.3	35	121	139		
	4995	SGMR	45	C	1512	1517.2		265			
	4995	SGMR	45	C	1512	1513.3	29	119	106		
	15400	SGMR	45	C	1512	1517.2		347			
	2800	OTTA	4	S/F	1512	1517	15	185	27		
	4995	BOUL	28	PRE	1512 E	1513	4.5D	111	37		
	1420	BOUL	4	SF	1515.5E	1516.5	9 D	133	44		
	930	BORD	46	C	1516.3	1516.8	1.1	190	5		
	4995	BOUL	3	S	1516.5E	1517	5.5D	262	87		
	2695	BOUL	3	S	1517.5E	1518.5	5 D	203	68		
	9400	HUAN	30	PBI	1520.4	1706.7	106.3	104.1	30.7		R
	9400	HUAN	4	S/F	1529.3	1533	3.7	13.6	6		L
	2800	OTTA	1	S	1652	1654.5	6	3	1.4		
	9400	HUAN	3	S	1659.4	1702.4	3	11.2	5.8		O
	2695	PENT	1	S	1850	1851	1.5	5.4	2		
	2800	OTTA	1	S	1856	1856.5	1	3	1.5		
	9400	HUAN	21	GRF	1923.7	2057.4	93.7	38.4	18.6		O
	2695	PENT	21	GRF	1945	2013.5	65	7.6	2.8		
	9400	HUAN	3	S	2006.2	2007.7	1.5	14.4	5.7		O
	9400	HUAN	1	S	2020	2021.2	1.2	9.6	5.5		O
	2695	PENT	1	S	2036	2037	6	6.2	3.1		
	9400	HUAN	3	S	2049.3	2050.5	1.2	19.2	9.4		R
	9400	HUAN	20	GRF	2105.3	2124.8	19.5	11.2	3.1		O
	9400	HUAN			2134.1	2137.8		48.1			
	9400	HUAN	45	C	2134.1	2137.8	3.7	48.9	22.2		R
	35000	NAGO	20	GRF	2318	2328	40	18			
13	35000	NAGO	20	GRF	0030	0050	60	27			
	1415	SYDN	40	F	0103.6	0121.2	21.1				
	700	SYDN	40	F	0103.7	0105.5	2.4				
	8800	MANI	3	S	0119.1	0121.2	4	11	3		IG
	4995	MANI	3	S	0119.1	0121.3	5.9	18.6	6.1		
	2695	MANI	3	S	0120.2	0121.2	3.5	13.4	4.5		
	1415	MANI	3	S	0120.3	0121.3	3.8	60.1	20		
	35000	NAGO	20	GRF	0210	0240	80	16			
	5730	IRKU	20	GRF	0229	0234	9	8	3		R
	5730	IRKU	45	C	0352	0357.6	23	33			R
	5730	IRKU			0352	0406.9		81			R
	35000	NAGO	20	GRF	0355	0416	60	54			
	8800	MANI	3	S	0406.2	0406.9	3.1	91	30		
	4995	MANI	3	S	0406.3	0407.1	4.8	37.1	12.3		
	5730	IRKU	29	PBI	0415	0420	14	15			R
	1415	SYDN	45	C	0429	0433.3	12.2				
	5730	IRKU			0429	0435.3		35			R
	5730	IRKU	23	GRF	0429	0433	16	37			R
	1415	MANI	4	S/F	0430	0433.5	10.6	128.8	42.9		
	2695	MANI	4	S/F	0430.1	0433.8	10.8	60.1	20.1		
	700	SYDN	45	C	0430.3	0433.8	7.4				
	686	MANI	4	S/F	0431.3	0433.7	5.5	71.8	23.9		
	6100	KISV	4	S/F	0515.3	0518.3	10	10			
	8800	MANI	3	S	0517.4	0518.6	2.6	236.6	78.9		

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	4995	MANI	3 S	0517.6	0518.8	2.4	29.5	9.5		
	5730	IRKU	2 S	0517	0518.6	13	46	6		R
	35000	NAGO	20 GRF	0518	0523	40	9			
	5730	IRKU	21 GRF	0530	0536.7	38	10			R
	5730	IRKU		0530	0601.5		6			R
	5730	IRKU		0530	0552.8		15			R
	6100	KISV	3 S	0540	0553	21	7			
	6100	KISV	32 ABS	0603	0606.3	6	-3			
	6100	KISV		0610	0644		17			
	6100	KISV		0610	0613		3			
	6100	KISV		0610	0610.2		2			
	6100	KISV	21 GRF	0610	0619	60	28 D			
	5730	IRKU		0617	0618.8		51			R
	5730	IRKU	45 C	0617	0618.3	11	40			R
	5730	IRKU		0617	0619.5		48			R
	9100	GORK	21 GRF	0628 E	0631.2	115.2	52.5			
	5730	IRKU	29 PBI	0629	0648.5	32	8			R
	202	IZMI	44 NS	0700		300	100			
	127	TORN	44 NS	0720 E	0843.7	400 D	120	11		V2
	260	ONDR	44 NS	0812 E		343 D	128	20		
	408	TRST	44 NS	0854 E	1052.6	226 D	110			
	410	SGMR	44 NS	1209 E	1739.4	536 D				
	245	SGMR	44 NS	1209 E	1459.8	536 D				
	6100	KISV	32 ABS	0709	0717	9	-4			
	6100	KISV	45 C	0720	0721	7	5			
	15000	KISV	1 S	0720	0721	3	10			
	9100	GORK	1 S	0721.2	0721.6	2.3	19	9.5		
	9100	GORK	21 GRF	0827.9	1019	183	61	25		
	33	LPIC	45 C	0904.6	0906	3.7				
	202	IZMI	45 C	0905.3	0905.8	1.5	700	300		
	113	POTS	2 S/F	0905.3	0905.4	2	42000	300		
	234	POTS	45 C	0905.3	0905.4	.9	1400	90		
	1470	BERL	3 S	0905.5	0906	1	9.8			
	3000	BERL	3 S	0905.5	0906.2	1	8.8			
	3100	CRIM	1 S	0905.5	0906	1	8	3		
	930	BORD	45 C	0905.5	0906.1	1.5	25	4		
	950	GORK	3 S	0905.5U	0906.8	3.6	9			
	237	TRST	41 F	0905.6	0905.8	.8	1035			0
	29	UPIC	45 C	0905.6	0906.1	2.5				
	6100	KISV	4 S/F	0905	0906		10			
	536	ONDR	8 S	0906.2	0906.2	.5	39			
	2950	GORK	1 S	0906.4	0906.7	.8	5.5	2.7		
	6100	KISV	4 S/F	0951	0953.5		9			
	9100	GORK	1 S	0952.8	0954	2	9	4.5		
	10400	BERN	2 S/F	1005	1015.5	86	29	84		
	8400	BERN	2 S/F	1005	1015.5	86	34	90		
	8400	BERN	2	1005	1015.5	86	90			0
	10400	BERN	2	1005	1015.5	86	84			
	6100	KISV		1007.3	1011		4			
	6100	KISV	45 C	1007.3	1016		17			
	9500	BERL	3 S	1014	1016	54	94			
	10715	DWIN	45 C	1014	1015	40	100	40		
	9100	GORK	4 SF	1015.4	1016.6	3.3	84	42		
	950	GORK	1 S	1015.4	1015.5	.3	1.5			
	2950	GORK	20 GRF	1015.9	1020.2	9	10.5	5		
	15000	KISV	8 S	1015	1015.5	55	120			
	237	TRST	41 F	1049.7	1049.9	.3	205			0
	7000	SAOP	3 S	1232.7	1233.5	.4				3R
	10400	BERN	3	1233	1233.5	6	43			
	8400	BERN	3	1233	1233.5	6	64			0
	10400	BERN	3 S	1233	1233.5	6	15	43		
	8400	BERN	3 S	1233	1233.5	6	24	64		
	9400	HUAN	3 S	1233.3	1235.8	2.5	55.8	6.1		0
	10715	DWIN	1 S	1233	1233	2	30	10		
	9400	HUAN	20 GRF	1320.8	1408.8	48	10.4	6.2		0
	7000	SAOP	41 F	1321						
	7000	SAOP	20 GRF	1321						0
	2800	OTTA	1 S	1330	1333	6	4.6	2		
	2800	OTTA	21 GRF	1427	1440	35	3.6	1.8		
	9400	HUAN	1 S	1428.7	1430.4	1.7	8.7	5.2		R
	410	SGMR	7 S	1431.2	1431.8	.9	262	78.6		
	2695	SGMR	3 S	1431.6	1432.5	1.7	18	5.4		
	606	SGMR	3 S	1431.8	1431.9	.8	365	110		
	4995	SGMR	3 S	1431.9	1432.5	1.6	10.2	33.1		
	2800	OTTA	3 S	1431.9	1432.4	1	10.4	5.2		
	930	BORD	45 C	1432	1432.1	1	19	5		
	9400	HUAN	20 GRF	1434.8	1500.6	25.8	7	3.2		R
	7000	SAOP	20 GRF	1615						19R
	9400	HUAN	20 GRF	1620.6	1645.7	25.1	13.9	4.7		0
	7000	SAOP	21 GRF	1652.2						
	7000	SAOP	21 GRF	1652.2						0
	7000	SAOP	4 S/F	1652.2						
	7000	SAOP	4 S/F	1652.2	1659	.5				11R
	2800	OTTA		1652	1704	50	12			
	9400	HUAN	21 GRF	1655.4	1738.5	43.1	20.9	11.8		0

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DAY OF MONTH	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	POLARIZATION OR REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	9400	HUAN	4 S/F	1658.7	1700.3	1.6	26.2	9.8		R
	15400	SGMR	3 S	1822.4	1825.1	8.6	36.5	11		SWF
	9400	HUAN	3 S	1822.6	1827.5	4.9	34.9	19.7		D
	7000	SAOP	4 S/F	1822.6	1825.2					6R
	9400	HUAN	29 PBI	1827.5	1931	3.5	19.2	8.2		D
	2800	OTTA	240 R	1833	1925	52	11.4	5.7		
	7000	SAOP	20 GRF	1914						13R
	7000	SAOP	3 S	1948	2009.3	2				11R
	9400	HUAN	21 GRF	1950	2031.3	41.3	22.7	12		R
	9400	HUAN	3 S	2007.9	2012.5	4.6	50.6	21.1		R
	2695	PENT	21 GRF	2020	2044	60	9.2	4.4		
	2695	PENT	2 S/F	2027	2028	2.5	4.2	2.1		
	9400	HUAN	21 GRF	2035.2	2116.2	41	26.2	9.7		D
	9400	HUAN	3 S	2036.2	2037.3	1.1	36.6	20.9		R
	9400	HUAN	3 S	2043.3	2047.7	4.4	27.9	14		D
	2800	OTTA	8 S	2045.2	2045.5	.8	2.6	1.3		
	245	SGMR	6 S	2045.3	2045.8	.8	171	51.3		
	606	SGMR	3 S	2045.4	2045.6	.4	10.5	3.2		
	410	SGMR	48 GB	2045.5	2045.9	.6	526	158		
	9400	HUAN	20 GRF	2138.1	2147	8.9	14	9.4		D
	9400	HUAN	3 S	2215.2	2217.5	2.3	34.9	17.4		D
	8800	MANI	47 GB	2352.7	2354.3	6.3	1575	509.8		
	2695	MANI	3 S	2352.8	2354.5	7	18.4	6.1		
	4995	MANI	3 S	2352.8	2354.3	7.2	409.3	136.3		
	35000	NAGO	47 GB	2353	2354	5	1570			
	35000	NAGO	29 PBI	2358	2408	40	110			
14	5730	IRKU		0351	0353.6		60			R
	5730	IRKU	45 C	0351	0352.9	8	38	21		R
	5730	IRKU		0351	0355.6		27			R
	5730	IRKU		0351	0354.3		48			R
	5730	IRKU	20 GRF	0359	0406.7	16	15			R
	2695	MANI	4 S/F	0431.1	0433	7.1	38.7	12.9		
	4995	MANI	3 S	0431.3	0433.3	4.5	27.9	9.4		
	700	SYDN	42 SER	0432	0437.2	13.1				
	1415	SYDN	42 SER	0432	0432.9	14				
	1415	MANI	4 S/F	0432.1	0432.9	4.1	160.1	53.4		
	606	MANI	4 S/F	0432.5	0437.2	7.3	71.8	23.9		
	9100	GORK	1 SF	0648.3	0648.8	2.5	19	8		
	6100	KISV	32 ABS	0658	0713	22	-4			
	5730	IRKU	2 S	0718	0723	8	114 U			R
	950	GORK	4 SF	0719.4	0722	3.5	5			
	127	TORN	44 NS	0720 E	1157.9	400 D	64	7		V1
	260	ONDR	44 NS	0810 E		346 D	135	11		
	245	SGMR	44 NS	1210 E	1647.4			147		
	245	SGMR	44 NS	1210 E	1401	535 D				
	410	SGMR	44 NS	1210 E	1418	535 D	122			
	9100	GORK	29 PBI	0720.1	0727.4	32.6	62	27		
	9100	GORK	49 GB	0720.1	0723.2	7	600			
	113	POTS	45 C	0720.3	0720.4	.2	200	30		
	6100	KISV	47 GB	0720	0722.5	30	761			
	15000	KISV	47 GB	0721	0722.5	39	922			
	3100	CRIM	3 S	0722	0723	1.5	65	22		
	2950	GORK	4 SF	0722.2	0723.2	5.2	109	54		
	8800	MANI	47 GB	0722.5	0723.1	6.1	966.9	322.3		
	4995	MANI	47 GB	0722.7	0723.1	6.5	602.1	200.8		
	2695	MANI	3 S	0722.8	0723.3	5	52.4	17.4		
	6100	KISV	1 S	0826	0827	5	2			
	113	POTS	1 S	0859.1	0859.1	.1	100	35		
	8400	BERN	8	0903.1	0903.5	1	15			
	10400	BERN	8	0903.1	0903.4	1	17			
	10400	BERN	8 S	0903.1	0903.4	1	6	17		
	8400	BERN	8 S	0903.1	0903.6	1	6	15		
	9100	ARCE	4 S/F	0903.3	0903.6	1.6				RECORD DISTURBED
	6100	KISV	1 S	0903	0903.5	1	2			
	234	POTS	6 S	0938	0949	21	350	1		
	6100	KISV	4 S/F	1000	1009.8	15	4			
	6100	KISV	1 S	1132	1133	2	2			
	15000	KISV	1 S	1133	1133.3	3	5			
	7000	SAOP	3 S	1154	1121.2	.8				D
	7000	SAOP	21 GRF	1154						D
	7000	SAOP	3 S	1154						
	7000	SAOP	21 GRF	1154						
	9100	ARCE	1 S	1154.4	1154.6	1				
	10400	BERN	3	1240.8	1241.9	10	41			OPR
	10400	BERN	3 S	1240.8	1241.9	10	14	41		
	9500	BERL	4 S/F	1241	1242.5	6	43			
	7000	SAOP	4 S/F	1241	1242.4					33R
	9100	ARCE	3 S	1241.4	1242.4	1.9				
	10715	DWIN	1 S	1241	1242	5	45	15		
	9100	ARCE	29 PBI	1243.3		8.9				
	7000	SAOP	20 GRF	1309.4		12				D
	9400	HUAN	20 GRF	1310.2	1323.2	13	9.9	4.8		R
	7000	SAOP	1 S	1337						
	7000	SAOP	21 GRF	1337						

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	7000	SAOP	1 S	1337	1411.7	.3				57L
	7000	SAOP	21 GRF	1337						
	9400	HUAN	3 S	1341.7	1346.3	4.6	13.2	7.4		R
	9400	HUAN	20 GRF	1359.7	1440	40.3	26.4	9.6		0
	2800	OTTA	24 R	1428	1432	4	4.6	2.3		
	2800	OTTA	27 RF	1428		140	4.6	4.2		
	2800	OTTA	24P R	1432		118	4.6			
	7000	SAOP	3 S	1617						
	7000	SAOP	21 GRF	1617						
	7000	SAOP	3 S	1617	1625.5	.2				0
	7000	SAOP	21 GRF	1617						
	9400	HUAN	20 GRF	1621.2	1639	17.8	23.1	10		R
	2800	OTTA	26 FAL	1630	1648	18	4.6	2.3		
	9400	HUAN	20 GRF	1642.7	1653.5	10.8	6.6	2.7		R
	9400	HUAN	1 S	1700	1701	1	9.9	4.5		R
	2800	OTTA	20 GRF	1840	1851	90	6	2.8		
	9400	HUAN	3 S	2012.2	2015.8	3.6	28	13.4		R
	15400	SGMR	3 S	2013	2013.6	1.6	39	6		
	2800	OTTA	20 GRF	2015	2037	50	10.6	3.6		
	9400	HUAN	22 GRF	2025	2134.5	69.5	46.1	12.3		0
	2695	PENT	26 FAL	2115	2145	30	-6.4			
	2695	PENT	3 S	2212.5	2213.7	2	11.2	3.8		
	1415	SYDN	1 S	2213.2	2213.7	2.5				
	2930	VORC	3 S	2350	2355	10	53			
15	6100	KISV	4 S/F	0555	0556.5	10	5			
	9100	GORK	23 GRF	0655.4	0718.6	36.6	12	6		
	9100	GORK	1 S	0705.5	0705.8	1	20	10		
	3100	CRIM	1 S	0705.5	0706	2	9	3		
	6100	KISV	8 S	0705	0705.7	1	5			
	127	TORN	44 NS	0720 E	0934.2	400 D	180	3		V1
	260	ONDR	44 NS	0840 E		313 D	28	2		
	245	SGMR	NS	1211 E	2038.8	535 D	203			3
	410	SGMR	NS	1211 E	1932.1	535 D	174			3
	237	TRST	41 F	1216.6	1216.7	.2	115			0
	237	TRST	41 F	1325.7	1325.8	.2	275			0
	9400	HUAN	20 GRF	1342.4	1424.8	42.4	9.9	3.5		0
	7000	SAOP	3 S	1343	1346.5	2.8				31R
	2800	OTTA	20 GRF	1450	1520	70	4	2		
	2800	OTTA	1 S	1800	1807	8	2.8	1.4		
	2800	OTTA	21 GRF	1820	1850	60	3	1.5		
	2800	OTTA	1 S	1822	1823	2	3.6	1.8		
	7000	SAOP	20 GRF	1830						0
	7000	SAOP	3 S	1946	1957	1.8				17R
	9400	HUAN	20 GRF	1951.1	2014.3	23.2	16.6	5.1		R
	2695	PENT	26 FAL	2005	2020	15	-3.6	-1.8		
	4995	BOUL	3 S	2240.5	2243 U	4	55	18		
	8800	MANI	4 S/F	2241	2242.9	3.2	115.4	38.5		
	4995	MANI	3 S	2241.7	2243.3	7.5	59.9	19.9		
	2695	BOUL	4 SF	2243 E	2244 U	2.5U	17	6		
	4995	BOUL	29 PBI	2244.5	2244.5	20	37	18		
	2695	BOUL	29 PBI	2245.5U	2245.5U	2.5U	11	4		
16	2695	MANI	4 S/F	0135.6	0136	3.5	51.7	17.2		
	1415	MANI	3 S	0135.8	0136	1.5	22.1	7.4		
	4995	MANI	3 S	0135.8	0136.8	1.7	20	6.7		
	2930	VORO	3 S	0135	0137	5	36			
	2930	VORO	3 S	0350	0353	5	31			
	1415	MANI	1 S	0351	0352.1	2	5.3	2		
	2695	MANI	3 S	0351	0351.9	2	32.8	10.9		
	4995	MANI	3 S	0351.5	0352.1	2.3	18.6	6.2		
	5730	IRKU	2 S	0351	0351.9	2	36			R
	5730	IRKU	29 PBI	0353		7	13			
	5730	IRKU	20 GRF	0400	0406.1	22	16			R
	5730	IRKU	2 S	0617	0618.6	3	27			R
	5730	IRKU	29 PBI	0620		10	8			
	200	GORK	44 NS	0630 E		300		5		
	260	ONDR	44 NS	0900 E		300 D	57	8		
	245	SGMR	44 NS	1212 E	1435	534 D	150			
	410	SGMR	44 NS	1212 E	1309.3	534 D	37.8			
	9100	GORK	1 S	0826.1	0828.2	2.5	9	4		
	9100	GORK	20 GRF	0912.3	0920.6	24.3	11	5		
	237	TRST	41 F	1202.5	1202.9	.8	130			5L
	113	POTS	45 C	1238.1	1238.1	.1	200	40		
	237	TRST	41 F	1238.2	1238.2	.6	165			0
	7000	SAOP	3 S	1308.2	1309.2	.6				27R
	7000	SAOP	20 GRF	1332						0
	7000	SAOP	41 F	1946						
	2695	PENT	240 R	1955	2005	10	3	1.5		
	2695	PENT	20 GRF	2025	2030	45	3.8	1.8		
17	2695	MANI	4 S/F	0348	0349.3	4.2	21.2	7.1		
	1415	MANI	4 S/F	0348.2	0349.4	3.9	21.3	7.1		
	200	GORK	44 NS	0630 E		300		5		
	260	ONDR	44 NS	0840 E		330 D	39			

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4	245	SGMR	44	NS	1212 E	1928.5	534 D	31.9			3G
	410	SGMR	44	NS	1212 E	1629.8	534 D	18.5			3G
	200	GORK	45	C	0727.5	0732.7	19.5	25			
	200	GORK			0727.5	0740.6		40			
	200	GORK			0727.5	0739.8		25 D			
	6100	KISV	48	C	0730	0735	65	74			
	3100	CRIM	47	GB	0731	0739	11	243			
	3100	CRIM	30	PBI	0731	0742	42	42			
	3100	CRIM			0731	0740.1		158			
	2950	GORK			0731.5	0740.1		333			
	2950	GORK	46	C	0731.5	0733.8	65	286			
	950	GORK			0731.6	0739.5		47			
	950	GORK	45	C	0731.6	0736.7	17.4	62			
	9100	GORK			0731.7	0738.6		200			
	9100	GORK			0731.7	0737.5		207			
	9100	GORK	45	C	0731.7	0736.5	9.7	126			
	9100	GORK	30	PBI	0731.7	0741.4	40.4	107	36		
	9100	GORK			0731.7	0739.9		190			
	650	GORK	45	C	0732.5	0736.2	19.5	37	16		
	650	GORK			0732.5	0745.4		17			
	650	GORK			0732.5	0739.5		33			
	2695	MANI	4	S/F	0732.7	0735.3	25.3	244.5	81.5		
	4995	MANI	4	S/F	0732.8	0741	22.9	286.6	95.5		
	1415	MANI	4	S/F	0732.8	0735.5	14.7	122.4	40.8		
	100	GORK			0738.7	0744.1		30			
	100	GORK	46	C	0738.7	0743.2	10.5	90			
	100	GORK			0738.7	0749		90			
	127	TORN	45	C	0738	0742	8.5	55			
	3100	CRIM	3	S	0744.2	0745.5	7.5	79			
	9100	GORK	1	S	0744.3	0746	3.5	24	12		
	202	IZMI	6	S	0745	0746.5	2.5	28	10		
	950	GORK	29	PBI	0749.2		51	12			
	7000	SAOP	3	S	1042	1134.7	.2				44L
	7000	SAOP	21	GRF	1042						
	7000	SAOP	3	S	1042						
	7000	SAOP	21	GRF	1042						
	100	GORK	8	S	1042	1042.4	1	110 D			
	202	IZMI	8	S	1042	1042	.7	430	200		
	237	TRST	41	F	1042.1	1042.3	.4	1275			4R
	260	ONDR	8	S	1042.4	1042.4	.3	209 D			
	15000	KISV	46	C	1133	1141		138			
	8400	BERN	8	S	1134.2	1134.7	1.5	8	22		
	10400	BERN	8	S	1134.2	1134.7	1.5	6	17		
	10400	BERN	8		1134.2	1134.7	1.5	17			
	8400	BERN	8		1134.2	1134.7	1.5	22			16L
	15000	KISV	4	S/F	1134.4	1134.8	1	6			
	6100	KISV	8	S	1134	1134.3	62	9 D			
	237	TRST	41	F	1233.6	1233.7	.4	190			0
	2800	OTTA	21	GRF	1420	1500	120	7.4	3.8		
	930	BORD	8	S	1427	1427.1	.2	67	1		
	9400	HUAN	3	S	1547.8	1550.3	2.5	25.2	8.6		0
	7000	SAOP	3	S	1616	1617	.2				27R
	2800	OTTA	8	S	1616.8	1616.8	.5	4			
	9400	HUAN	21	GRF	1726.5	1944.5	138	23.5	10.3		R
	4995	BOUL	28	PRE	1755	1800	11	13	4		
	7000	SAOP	3	S	1756	1808.2	.6				20R
	4995	BOUL	3	S	1806.5	1808.5	4.5	101	34		
	9400	HUAN	4	S/F	1807.2	1812	4.8	84	29.6		R
	15400	SGMR	3	S	1807.5	1808.2	2.7	55.3	16.6		SWF
	2695	SGMR	3	S	1807.8	1808.4	1.4	66.3	19.9		SWF
	8800	SGMR	3	S	1807.9	1808.4	1.3	93.8	28.1		SWF
	4995	SGMR	3	S	1807.9	1808.4	1.3	51.7	15.5		SWF
	2800	OTTA	3	S	1807	1808.2	5	58	20		
	1420	BOUL	1	S	1808.5E	1809.5	2.5D	9	3		
	2695	BOUL	3	S	1808 E	1809	2 D	62	21		
	2695	BOUL	29	PBI	1810	1810	25.5	16	5		
	4995	BOUL	29	PBI	1810	1810	40	32	11		
	2800	OTTA	30	PBI	1812	1812	28	8.4	4.2		
	2800	OTTA	8	S	1815	1815.3	.6	3.4	1.7		
	2800	OTTA	8	S	1907.1	1907.1	.1E	4.2			
	2800	OTTA	26	FAL	1910	1945	35	-7.4	-3.7		
	2800	OTTA	8	S	1956.3	1956.3	.1E	2.8			
	9400	HUAN	4	S/F	1956.8	2003.7	6.9	67.2	22.5		0
	7000	SAOP	3	S	2000	2002	.4				0
	9400	HUAN	29	PBI	2003.7	2016.8	15.1	10.1	8		0
	2800	OTTA	1	S	2023	2023.3	1	1.4	.7		
18	200	GORK	44	NS	0633		300		5		
	127	TORN	44	NS	0720 E	0910	400 D	69	6		V2
	260	ONDR	44	NS	0820 E		340 D	20			
	100	GORK	43	NS	0906		144		5		
	245	SGMR	44	NS	1213	1819.1	534 D	86			
	410	SGMR	44	NS	1213	1725.9	534 D	9.9			
	245	SGMR	4	NS	1635.3	1636.1	1.5	263	78.9		3G
	9100	GORK	20	GRF	0701.1	0702.3	9.1	8	4		

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	100	GORK		0853.7	0856.5		2800			
	100	GORK	46 C	0853.7	0855	7	110 D			
	930	BORO	8 S	0944.4	0944.4	.3	21	1		
	2800	OTTA	4 S/F	1635.5	1636	3	10.6	2.6		
	2800	OTTA	26 FAL	1710	1755	45	-3.2	-1.6		
	2695	PENT	1 S	2017.9	2018.2	1	2.6	1.3		
	9400	HUAN	4 S/F	2042.7	2044.4	1.7	17.2	8.8		0
	2695	PENT	8 S	2153.9	2154	.2	2.8	1.4		
	1415	SYDN	45 C	2347.4	2348.3	8.7				
	700	SYDN	45 C	2347.4	2348.2	2.8				
	8800	MANI	4 S/F	2347.6	2349	1.4	421.2	269.7		I
	2695	MANI	4 S/F	2347.6	2348.1	3.7	23.8	17.5		
	4995	MANI	4 S/F	2347.6	2348.1	4.2	255.5	196.6		
	1415	MANI	4 S/F	2347.7	2348.7	3.4	162.8	80.8		
	35000	NAGO	5 S	2348	2348	6	63			
19	200	GORK	44 NS	0630 E		290		5		
	127	TORN	44 NS	0720 E	1033.6	400 D	51	5		V1
	202	IZMI	43 NS	0800		120	30			
	260	ONDR	44 NS	0923 E		274 D	30			
	410	SGHR	44 NS	1214 E	1911.8	533 D	37	157		
	245	SGHR	44 NS	1214 E	2051.2	533 D				
	9100	GORK	20 GRF	0830.8	0837	14.5	6.4	3.2		
	260	ONDR	8 S	1010	1010	.2	192			
	237	TRST	41 F	1147	1147.1	.3	80			8L
	9100	ARCE	3 S	1422.3	1422.6	1.2				
	2800	OTTA	240 R	1430	1500	30	3.6	1.8		
	2800	OTTA	26 FAL	1720	1840	80	-6.2	-4		
	9400	HUAN	20 GRF	1832	1849.8	17.8	4.9	2.9		0
	4995	BOUL	3 S	1934	1937	3.5	17	6		
	2930	VORO	45 C	2345	2348	10	133			
20	200	GORK	44 NS	0736 E		243		5		
	260	ONDR	44 NS	0820 E		340 D	22			
	245	SGHR	44 NS	1214 E	2001	533 D	275			
	410	SGHR	44 NS	1214 E	2002.6	533 D	189			
	606	SGHR	43 NS	1740 E	2002.5	207 E	144			
	536	ONDR	45 C	1046.3	1046.3	2	62	20		
	930	BORO	42 SER	1046.4	1048.6	2.6	17	2		
	1470	BERL	S	1248	1248.9	1.5	2.4			
	3000	BERL	3 S	1248	1248.8	1.5	10			
	113	POTS	45 C	1248	1248.2	1	1950	95		
	234	POTS	45 C	1248	1248.2	1.1	2700	450		
	237	TRST	41 F	1248	1248.4	1	4735			0
	2650	DWIN	1 S	1248	1248	1	15	5		
	536	ONDR	46 C	1248	1248.8	4	27	2.8		
	260	ONDR	46 C	1258.5	1258.5	3.5	212 D	49		
	606	SGHR	45 C	1641	1729.5		82.5			
	606	SGHR	45 C	1641	1649.9	59	161	64.4		
	245	SGHR	7 C	1642	1728.9		215			
	245	SGHR	7 C	1642	1650	58	222	88.8		
	410	SGHR	7 C	1642.5	1729.5		61.1			
	410	SGHR	7 C	1642.5	1646.7	57.5	120	48		
	9400	HUAN	20 GRF	1758.1	1812	13.9	10.3	5.6		0
21	200	GORK	44 NS	0630 E		300 E		10		
	202	IZMI	43 NS	0700		300	110			
	127	TORN	44 NS	0730 E	0817	390 D	35	1		V1
	260	ONDR	44 NS	0804 E		366 D	47	8.4		
	245	SGHR	44 NS	1215 E	1238.1	533 D	112			
	410	SGHR	44 NS	1215 E	1348.3	533 D	23			
	6100	KISV	4 S/F	0732	0747	23	4			
	536	ONDR	46 C	1045.6	1046.8	2.5	46	2		
	234	POTS	45 C	1046.1	1046.2	2.1	1225	10		
	408	TRST	41 F	1046.1	1046.3	2	91 D			
	237	TRST	41 F	1046.2	1046.3	1.3	1845			0
	113	POTS	2 S/F	1046.2	1046.2	2	105	1		
	260	ONDR	8 S	1046	1046	.3	165			
	113	POTS	45 C	1119.4	1119.4	.1	100	8		
	2650	DWIN	45 C	1410	1411	2	20	5		
	2800	OTTA	21 GRF	1520	1655	180	6.4	3.2		
	9400	HUAN	20 GRF	1627.1	1739.2	72.1	10	5		R
	7000	SAOP	45 C	1646						
	7000	SAOP	45 C	1646	1648					39L
	7000	SAOP	45 C	1646	1646.7					25L
	2800	OTTA	2 S/F	1646.5	1648	2.5	5.2	2.6		
	1420	BOUL	28 PRE	1721.5E	1733 U	9.5D	7	2		
	2800	OTTA	2 S/F	1731.8	1733.5	2.2	9.2			
	1415	SGHR	3 S	1732.4	1733.3	1.6	98	19		
	1420	BOUL	4 SF	1732 E	1733.5	2.5D	120	40		
	2695	BOUL	3 S	1734.5E	1735	1 D	20	7		
	1420	BOUL	29 PBI	1734	1734	15 U	7	2		
	2800	OTTA	21 GRF	1855	1910	65	1.8			
	2800	OTTA	40 F	1957	1957.7	2	11.4			
22	127	TORN	44 NS	0730 E	1008	390 D	80	14		V1

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	200	GORK	44	NS	0824 E		186 E			5		
	100	GORK	44	NS	0824 E		186			5		
	260	ONDR	44	NS	0922 E		282 D		24	2		
	410	SGMR	44	NS	1215 E	1848.5	533 D		13			
	245	SGMR	44	NS	1215 E	1509.8	533 D		70.6			
	234	POTS	6	S	0945	0949	11		280	1		
	9100	ARCE	1	S	1050	1050.2	.7					
	9100	ARCE	1	S	1052.8	1052.9	.5					
	9400	HUAN	20	GRF	1355.7	1529.7	94		6.9	3.3		0
	930	BORD	46	C	1427.5	1427.7	.5		102	7		
	9100	ARCE	1	S	1453.2	1453.3	.5					
	2800	OTTA	23	GRF	1832	1837	28		6.6	2.2		
	7000	SAOP	3	S	1840.6	1841.2	.2					0
	2800	OTTA	1	S	1841	1841.2	1		8.6	4.3		
23	200	GORK	44	NS	0630 E		296 E			5		
	100	GORK	44	NS	0636 E		24			30		
	127	TORN	44	NS	0730 E	1006.4	210 D		59	14		V1
	100	GORK	44	NS	0800 E		213 E			5		
	260	ONDR	44	NS	0906 E		286 D		21			
	245	SGMR	44	NS	1216 E	1307.4	533 D		50			
	237	TRST	41	F	0822.7	0822.8	.5		120			2L
	202	IZMI	41	F	0822.7	0823.7	1.1		110			
	237	TRST	41	F	0916.5	0916.6	.5		118			0
	6100	KISV	1	S	0916	0917.5	4		1			
	6100	KISV	1	S	0929	0930.5	4		2			
	6100	KISV	1	S	0948	0950	5		2			
	237	TRST	5	S	1033.2	1033.2	.1		132	40		0
	930	BORD	41	F	1054	1055	1.4		28	2		
	6100	KISV	1	S	1121.5	1125	8		2			
	237	TRST	41	F	1211	1211.1	.4		155			0
	237	TRST	41	F	1307.2	1307.6	.6		425			0
	113	POTS	45	C	1324.5	1325	1.2		600	25		
	237	TRST	41	F	1347.6	1347.6	.2		575			0
	237	TRST	41	F	1359.8	1400.2	.7		555			0
	245	SGMR	7	S	1359.8	1400.3	1.2		420	84		
	410	SGMR	6	S	1359.8	1400.5	.8		8	2		
	9400	HUAN	4	S/F	1451.8	1453.3	1.5		25.6	9.2		L
	245	SGMR	6	S	1601.2	1604.8	5.1		71.9	21.6		
	7000	SAOP	46	C	1603	1604.7						0
	410	SGMR	6	S	1603.1	1604.9	3.2		78.2	23.5		
	606	SGMR	3	S	1603.7	1604.9	2.5		79.8	23.9		
	9400	HUAN	3	S	1725.7	1728	2.1		15.3	5.1		L
	606	SGMR	3	S	1730.9	1731.6	1.2		87	26		3G
	245	SGMR	48	GB	1731	1731.7	1.2		891	267		3G
	410	SGMR	6	S	1731	1731.8	2		109	32		3G
	7000	SAOP	1	S	1731	1731.5	.3					0
	2800	OTTA	1	S	1731	1731.4	2.5		7.4	3		
	245	SGMR	6	S	2028.1	2030.2	1.1		89	18		
	410	SGMR	6	S	2028.2	2028.5	2.8		109	22		
	606	SGMR	3	S	2028.2	2028.7	.9		67	13		
	2800	OTTA	1	S	2028	2029	2		3	1.3		
	2695	PENT	1	S	2052	2054.5	4.5		2.6			
	9400	HUAN	4	S/F	2222.6	2228.4	5.8		44.3	16		L
	4995	BOUL	45	C	2224.5	2226	11		29	10		
	1420	BOUL	3	S	2226 E	2226.5	1 D		30	10		
	2695	PENT	40	F	2226	2226.5	9		13			
	2695	BOUL	22	GRF	2227.5E	2234.5	10 D		15	5		
24	127	TORN	44	NS	0730 E	0847.4	240 U		29	1		V0
	260	ONDR	44	NS	0830 E		340 D		57	3		
	410	SGMR	44	NS	1216 E	1334.8	534 D		17.3			
	245	SGMR	44	NS	1216 E	1944.2	534 D		233			
	930	BORD	41	F	0816.5	0816.8	1.5		29	3		
	237	TRST	41	F	0840.5	0840.6	.3		115			2R
	930	BORD	8	S	0841	0841.2	.3		17	2		
	930	BORD	41	F	0846.4	0847.7	1.6		26	2		
	6100	KISV	27	RF	0846	0930	194		10			
	6100	KISV	1	S	0846	0847	2		2			
	3100	CRIM	20	RF	0856	0932	113		8	3		
	6100	KISV	1	S	0906	0907	2		3			
	29	UPIC	2	S/F	1203.9	1204.1	.6					
	33	UPIC	2	S/F	1204	1204.3	.8					
	33	UPIC	2	S/F	1206.2	1206.8	1.3					
	29	UPIC	2	S/F	1206	1206.6	1.7					
	2800	OTTA	20	GRF	1455	1650	225		4	2		
25	2695	MANI	1	S	0003.1	0006.4	4.9		7.9	2.6		
	1415	MANI	2	S/F	0004.8	0005.7	2.6		9.2	3.1		
	202	IZMI	5	S	0744.5	0744.5	.6		80	40		
	3100	CRIM	1	S	0747.2	0747.6	.8		4	1		
	260	ONDR	44	NS	0836 E		334 D		54	5		
	202	IZMI	43	NS	0930		150		75			
	410	SGMR	44	NS	1217 E	1439.8	533 D		26.9			
	245	SGMR	44	NS	1217 E	1659.7	533 D		10.4			

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	202	IZMI	41 F	0936.3	0937	1.3	260			
	202	IZMI	41 F	1004.5	1005.3	1.5	360			
	234	POTS	45 C	1140	1140.1	.2	175	35		
	2800	OTTA	20 GRF	1510	1525	50	2.2	1.1		
	9400	HUAN	3 S	2020.6	2023.3	2.7	13.7	6.8		L
26	5730	IRKU	45 C	0320	0321.8	6	9			
	5730	IRKU		0320	0328.8		20			
	5730	IRKU		0320	0323.5		23			
	5730	IRKU	29 PBI	0327		15	8			
	260	ONDR	44 NS	0830 E		301 D	27			
	245	SGMR	44 NS	1217 E	1954.4	534 D	100			
	6100	KISV	3 S	0900	0902.3	5	3			
	6100	KISV	2 S/F	1026	1027.5	4	3			
	9400	HUAN	3 S	1408.7	1410	1.3	11.3	5.6		0
	2800	OTTA	20 GRF	1950	1955	15	1.4	.7		
27	127	TORN	44 NS	0730 E	0739.5	170 U	22	1		V0
	3100	CRIM	21 GRF	0855	1115	189	9	3		
	113	POTS	45 C	0956	0956.4	.9	140	20		
	3100	CRIM	1 S	1037.2	1037.6	1	7	2		
	260	ONDR	41 F	1056	1059.8	4	20			
	9100	ARCE	1 S	1225.7	1225.8	.6				
	9400	HUAN	20 GRF	1336.2	1349	12.8	6.6	2.3		0
	2800	OTTA	240 R	1505	1515	10	2.6	1.3		
	2695	SGMR	47 GB	1627.8	1638.1	39.2	540	162		2,SWF
	2800	OTTA	4 S/F	1627	1637.5	31	380	117		
	4995	BOUL	47 GB	1627	1637.5	18	760	253		
	35000	SGMR	3 S	1628	1636.5	39	148	44.4		2,SWF
	15400	SGMR	3 S	1628.2	1637	38.8	394	118		2,SWF
	4995	SGMR	47 GB	1628.8	1637.4	37.2	747	224		2,SWF
	2695	BOUL	45 C	1628 E	1639	17 D	420	140		
	1420	BOUL	45 C	1628 E	1640	15.5	126	42		
	1415	SGMR	3 S	1629 U	1640.5	38 U	209	69.6U		2,SWF
	245	SGMR	6 S	1629	1640.5	43.3	218	65.4		2,SWF
	410	SGMR	48 GB	1629	1640.3	43.3	567	170		2,SWF
	606	SGMR	3 S	1629 U	1637.5	38 U	144	47.7U		2,SWF
	8800	SGMR	3 S	1629	1637.3	36	428	128		2,SWF
	4995	BOUL		1629.5E	1630.5		538	179		
	4995	BOUL		1633.5E	1634.5		269	90		
	1420	BOUL	29 PBI	1643.5	1643.5	13	23	8		
	4995	BOUL	29 PBI	1645	1645	95.5U	77	26		
	2695	BOUL	29 PBI	1645	1645	17	44	15		
	2800	OTTA	29 PBI	1658	1658	80	13.8	7.2		
28	100	GORK	43 NS	0730		71		5		
	260	ONDR	44 NS	0810 E		351 D	81	6		
	410	SGMR	44 NS	1218 E	1241.4	534 D	68			
	245	SGMR	44 NS	1218 E	1235.4	534 D	102			
	2650	DWIN	45 C	1105	1107	3	90	20		
	7000	SAOP	3 S	1150	1151.2	.2				36L
	6100	KISV	8 S	1150.5	1151	3	13			
	237	TRST	41 F	1227.3	1228	1.1	90			6L
	2800	OTTA	240 R	1455	1540	45	5.4	2.5		
	2800	OTTA	20 GRF	1755	1810	30	2.6	1.3		
	2800	OTTA	20 GRF	1900	1912	60	4.8			
	9400	HUAN	20 GRF	1913.9	1947.5	33.6	13.7	5.2		0
	2695	PENT	1 S	2106	2108	5	1.4	.7		
29	260	ONDR	44 NS	0820 E		355 D	26			
	410	SGMR	44 NS	1218 E	1617.4	535 D	6.6			
	245	SGMR	44 NS	1218 E	1249.8	535 D	22.8			
	100	GORK	46 C	1026.3	1026.9	3	90			
	100	GORK		1026.3	1028.3		170			
	7000	SAOP	2 S/F	1510.5	1511.2					47L
	9400	HUAN	3 S	1632	1634.8	2.8	26.5	8.2		L
	2800	OTTA	20 GRF	1810	1912	80	2.8	1.4		
	2695	PENT	20 GRF	2010	2055	90	2	1.2		
30	5730	IRKU	45 C	0537	0546.5	25	28			
	5730	IRKU		0537	0548.5		29			
	5730	IRKU		0537	0547.1		29			
	5730	IRKU		0537	0557		38			
	5730	IRKU		0537	0551.3		28			
	35000	NAGO	20 GRF	0546	0600	37	17			SUNSET
	2695	MANI	3 S	0600 E	0605	11 D	29	9.7		
	5730	IRKU	29 PBI	0603		32	18			
	606	MANI	4 S/F	0609.5	0614.8	20	57.1	19		
	260	ONDR	44 NS	0847 E		298 D	44			
	245	SGMR	44 NS	1218 E	1258.6	536 D	84.8			
	3000	BERL	4 S/F	0852	0852.8	3	53			
	606	MANI	4 S/F	0852.3	0853.9	1.7	122.3	40.7		
	1415	MANI	4 S/F	0852.5	0853.9	2	51.5	17.2		
	2695	MANI	4 S/F	0852.5	0852.9	2	24.6	8.2		I
	1470	BERL	4 S/F	0852.5	0853.8	2	24			

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	113	POTS	45 C	0852.5	0853.7	2.6	90000	350		
	808	ONDR	41 F	0852.5	0852.5	1.5	252			
	536	ONDR	41 F	0852.6	0853.5	2	70			
	950	GORK	45 C	0852.7	0852.9	4.4	77 D			
	650	GORK		0852.7	0854.2U		80 D			
	650	GORK	46 C	0852.7	0852.9U	2	80 D	28		
	950	GORK		0852.7	0854.2		77			
	100	GORK	45 C	0852.9	0853	1.8	130 D			
	100	GORK		0852.9	0854		200000 D			
	2650	DWIN	45 C	0852	0853	2	45	10		
	2950	GORK	46 C	0853	0853.1	2	58			
	202	IZMI	45 C	0853.2	0854	1.3	300	100		
	29	UPIC	4 S/F	0853.4	0854	1.8				
	33	UPIC	45 C	0853.4	0853.8	1.8				
	234	POTS	45 C	0853.5	0853.7	.5	190	60		
	237	TRST	41 F	0853.7	0853.9	.3	330			2R
	3100	CRIM	25 R	0935	1100		3			
	3100	CRIM	1 S	1031.5	1032	1	3	1		
	930	BORD	45 C	1048.5	1049.7	1.3	22	2		
	3100	CRIM	1 S	1049.5	1050	1	3	1		
	2800	OTTA	21 GRF	1530	1620	110	3.8	1.9		
	2800	OTTA	1 S	1608.5	1610	10	6	2.4		
	2800	OTTA	22 GRF	1735		45	2.2			
	2695	PENT	20 GRF	1835	1900	45	2	1.1		
	2695	PENT	240 R	2030	2056	26	2.8			
	9400	HUAN	21 GRF	2109.5	2141.5	32	10.4	4.8		0
	9400	HUAN	1 S	2113.7	2116.3	2.6	8.7	3.5		R
31	6100	KISV	1 S	0806	0807	4	4			
	237	TRST	41 F	0822.7	0823	.5	115			0
	3100	CRIM	25 R	0840	1030		16			
	3100	CRIM	1 S	0905	0907.5	8	10	3		
	3000	BERL	4 S/F	0905	0907.5	6.5	12			
	1470	BERL	S	0906.5	0907.5	2.5	2.6			
	6100	KISV	4 S/F	0906	0908.5	4	7			
	2950	GORK	3 S	0907.3	0908	5.6	16	7		
	9100	GORK	1 S	0907.4	0907.7	2.2	4	2		
	260	ONDR	44 NS	1010 E		220 D	10			
	245	SGMR	44 NS	1218 E	1636.7	537 D	174.8			3G
	410	SGMR	44 NS	1218 E	1318.2	316.8D	152.9			3G
	2800	OTTA	20 GRF	1550	1612	70	14	4.6		
	9400	HUAN	20 GRF	1608.8	1643.5	34.7	16.4	5.6		0
	2800	OTTA	20 GRF	1724	1727	20	2	1		
	7000	SAOP	20 GRF	1751						0
	9400	HUAN	4 S/F	1757	1800.2	3.2	44.2	12.8		R
	2800	OTTA	40 F	1805	1806.8	3	5			
	410	SGMR	6 S	1901.3	1901.5	1	122.3	36.9		3
	606	SGMR	47 GB	1905.1	1906.2	2.1	713	214		
	410	SGMR	6 S	1905.3	1906	2.9	103	30.9		
	1415	SGMR	3 S	1905.8	1906.4	1.4	22.2	6.7		
	2800	OTTA	3A S	1905.8	1906.5	2	45	12		
	245	SGMR	7 S	1905.9	1906.1	1.6	291	87		
	2800	OTTA	8 S	1906.5	1906.5	.1E	57			
	1420	BOUL	3 S	1906.5E	1907.5	2 D	31	10		
	2695	BOUL	8 S	1907 E	1907.5	1 D	90	30		
	1420	BOUL	3 S	2110.2E	2113	1.5D	18	6		
	2695	PENT	3 S	2112	2112.8	2	12.4	4.2		
	2695	BOUL	3 S	2113 E	2114	1.5D	13	4		

Reports received from the following observatories:

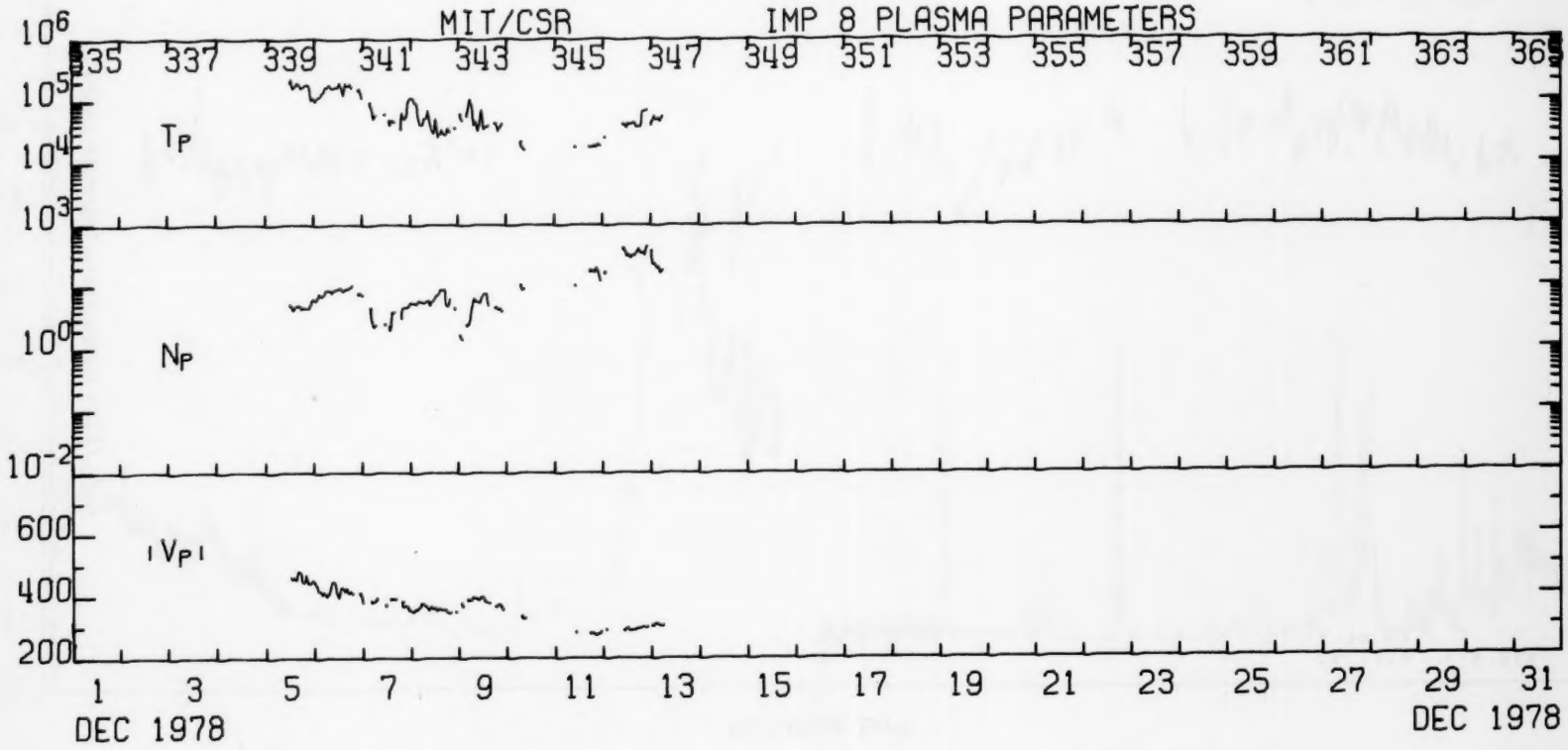
ARCE = Arcetri
BERL = Berlin-Adlershof
BERN = Berne
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

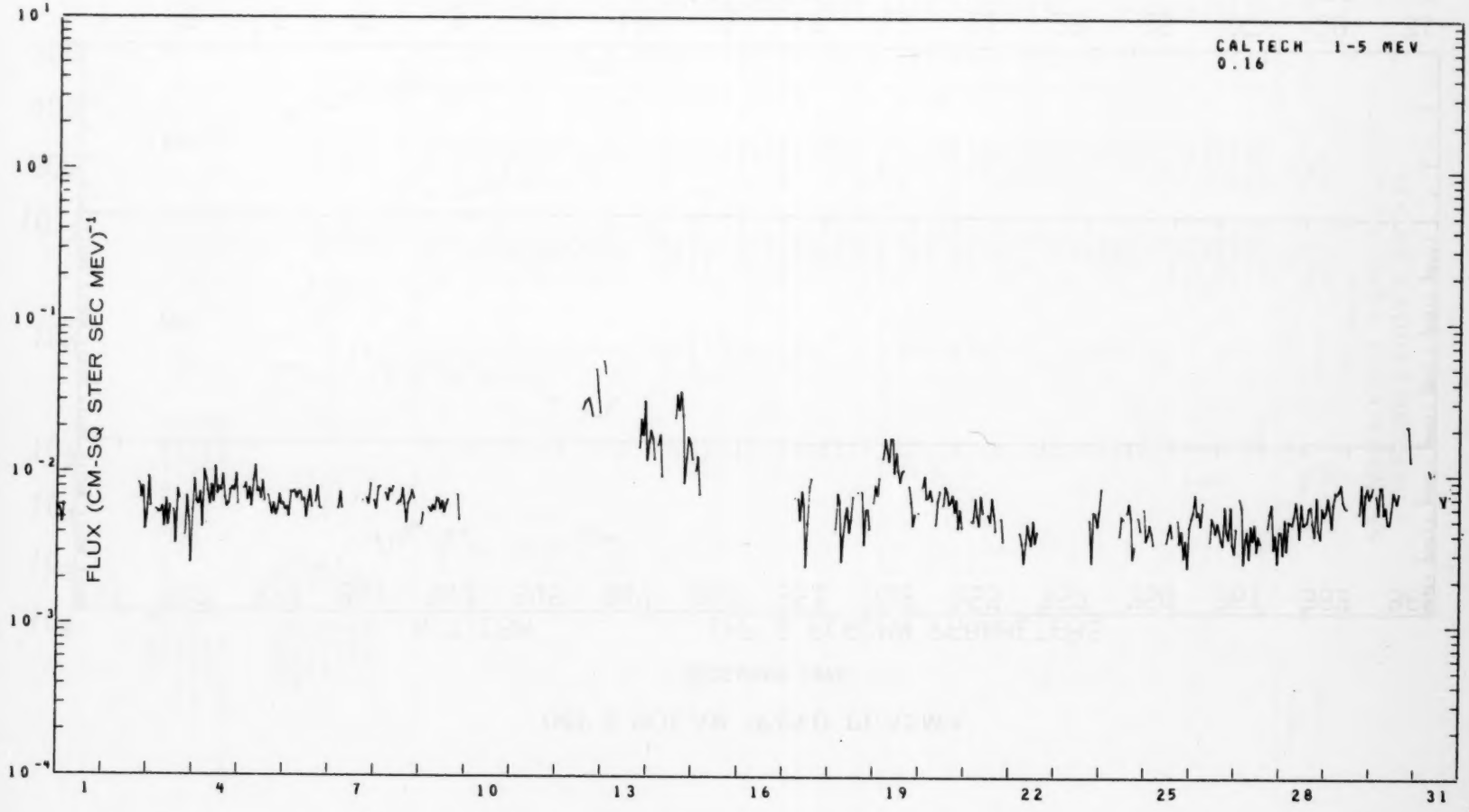
IMP 8 SOLAR WIND PLASMA

DECEMBER 1978



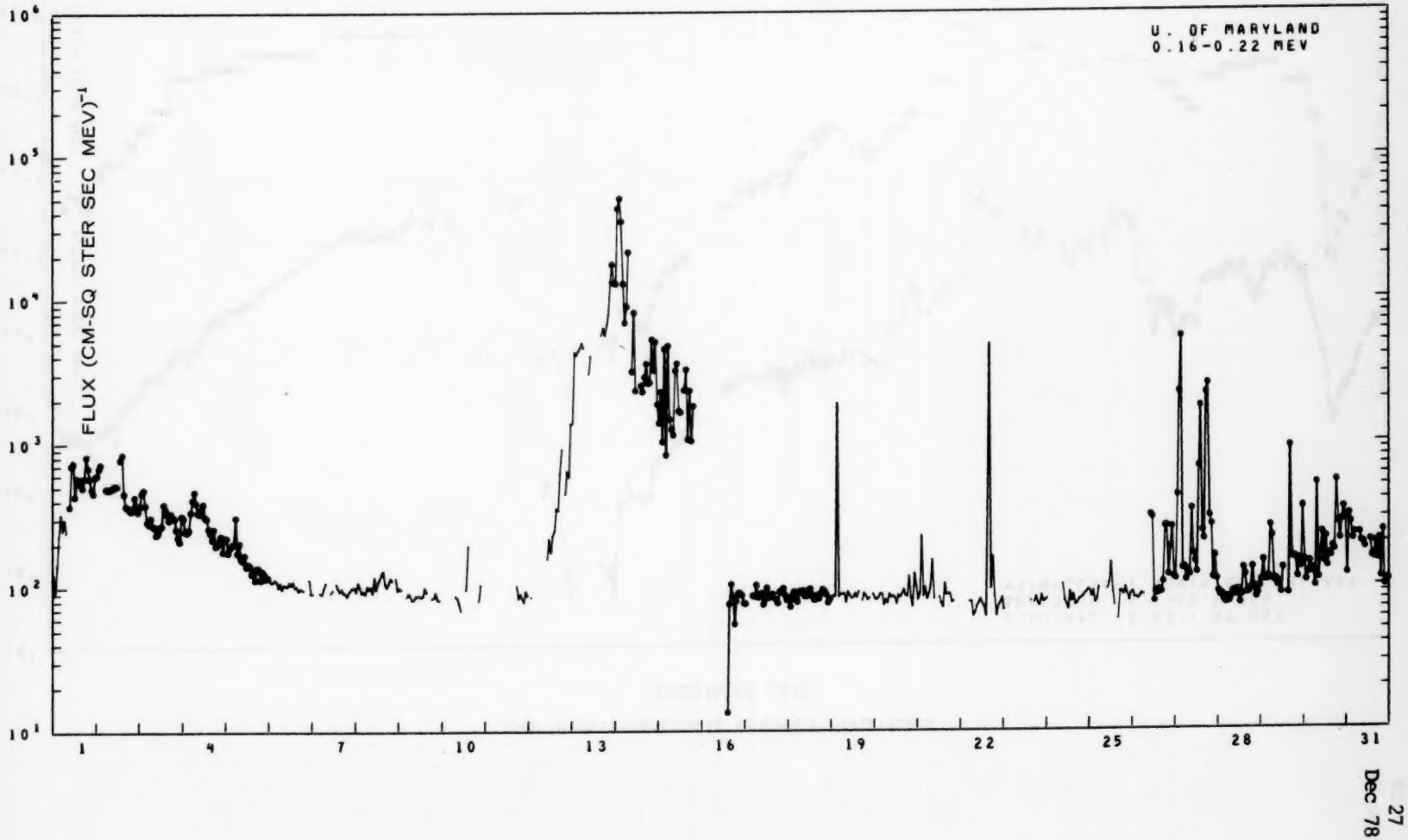
IMP 8 ELECTRONS

DECEMBER 1978



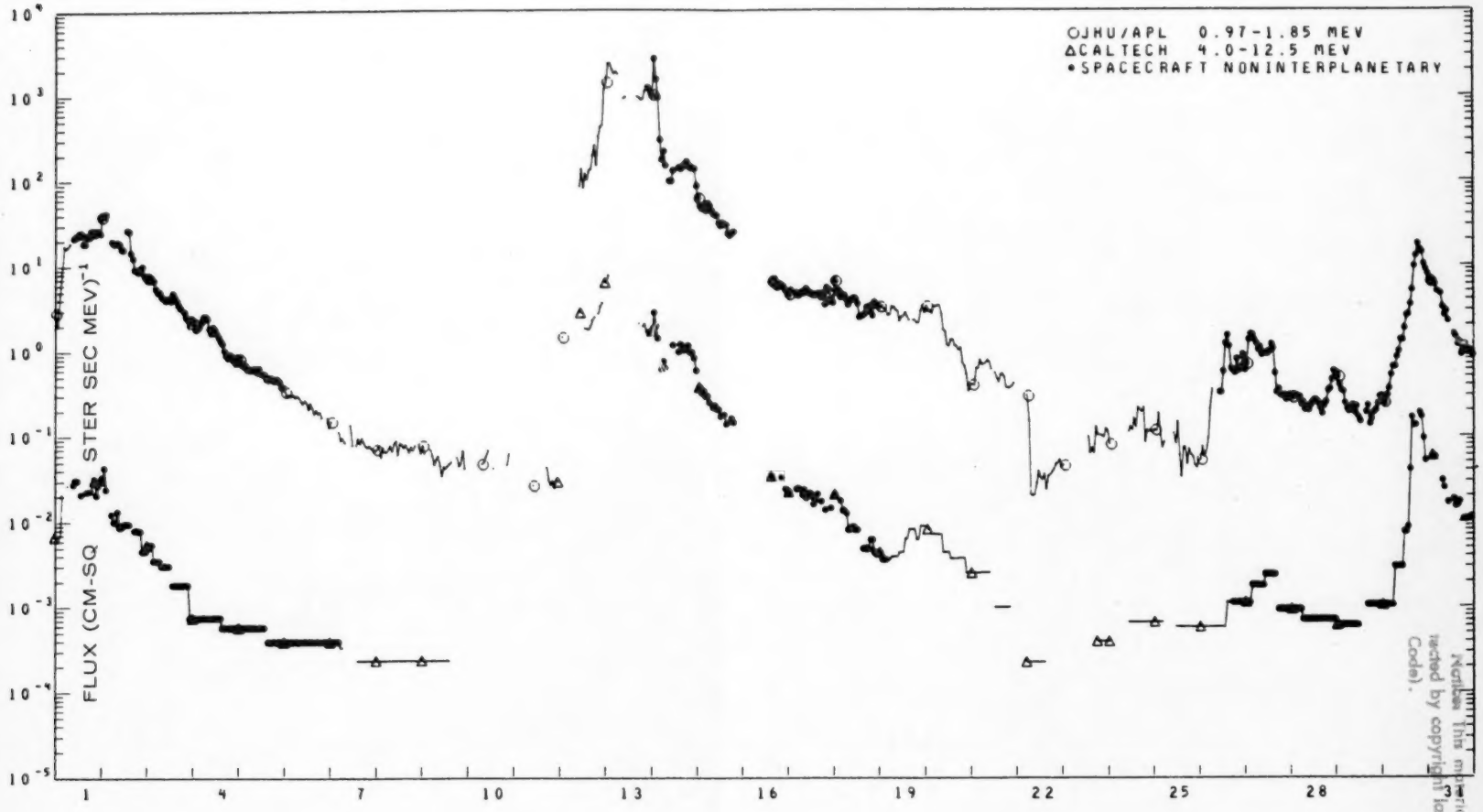
IMP 8 LOW ENERGY PROTONS

DECEMBER 1978



IMP 8 INTERMEDIATE ENERGY PROTONS

DECEMBER 1978



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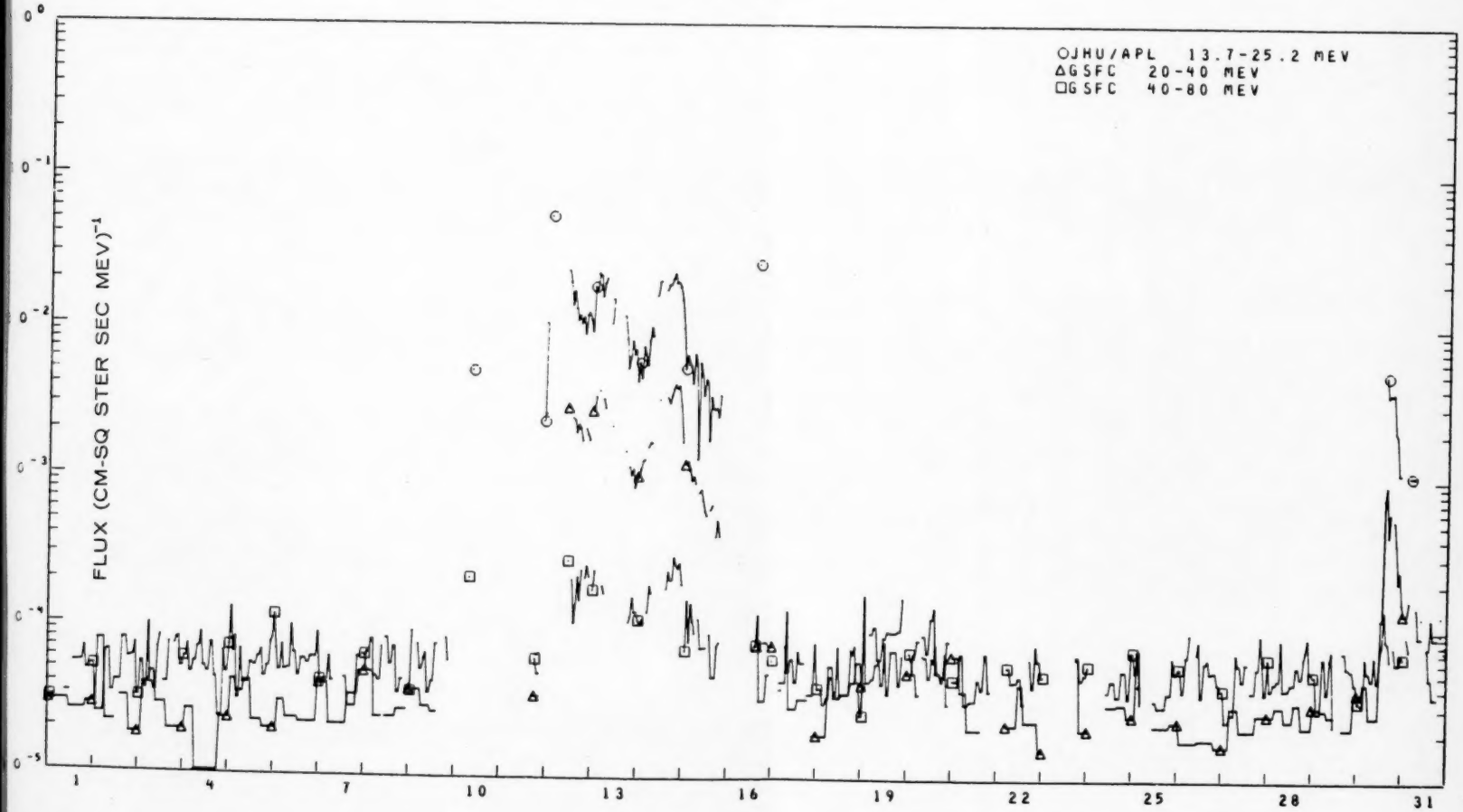
IMP 8 HIGH ENERGY PROTONS

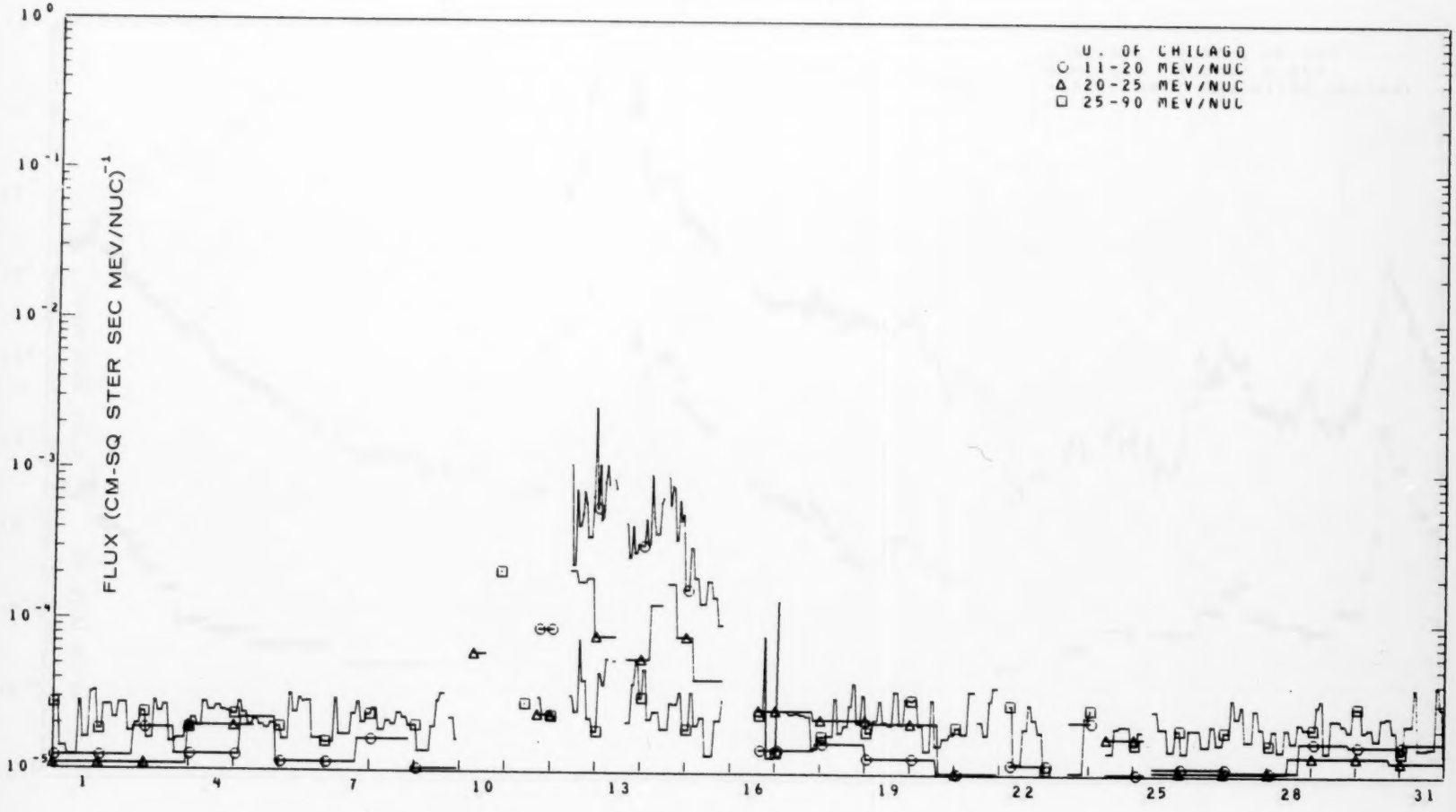
DECEMBER 1978

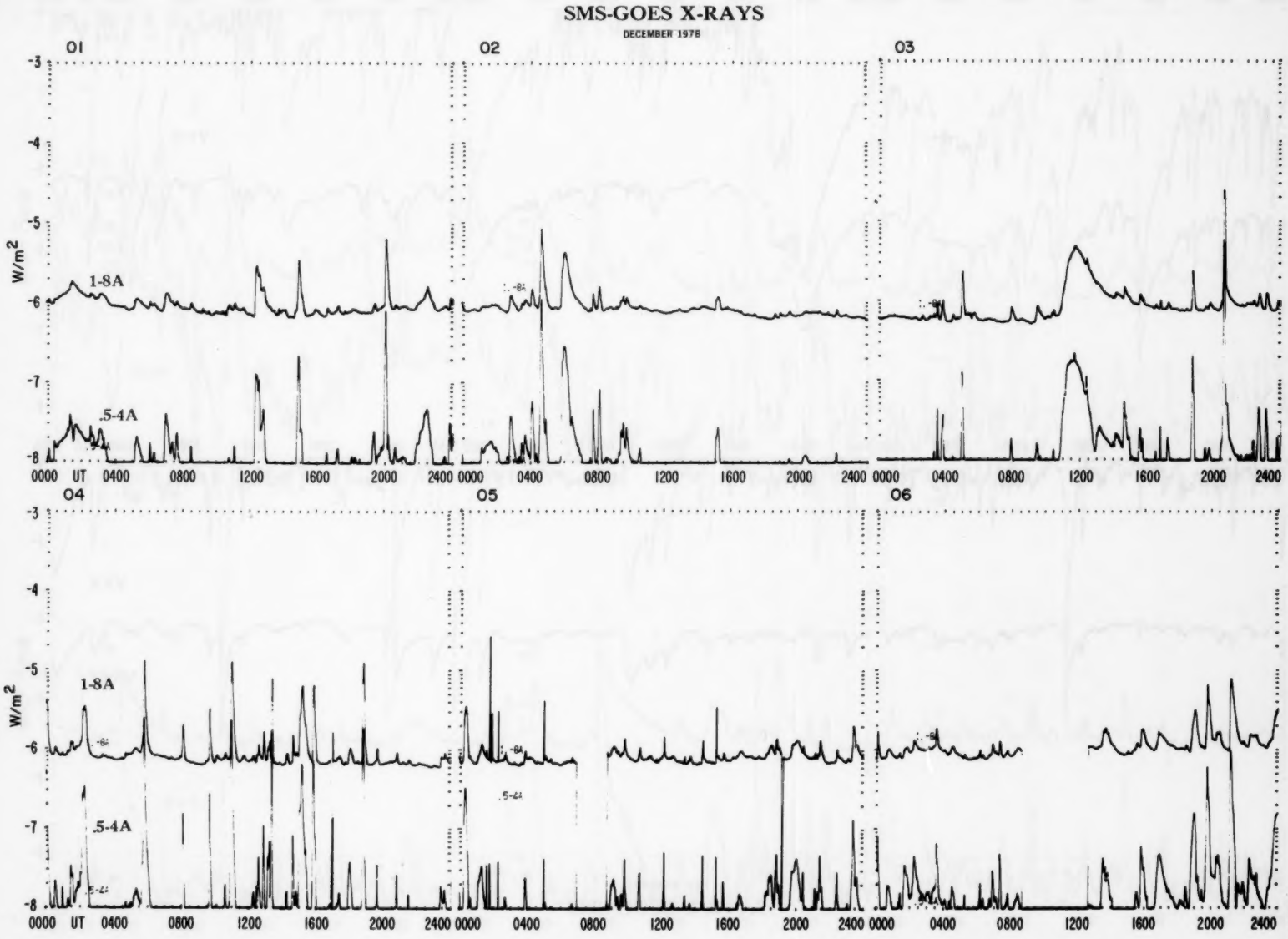


29 Dec 78

IMP 8 ALPHA PARTICLES

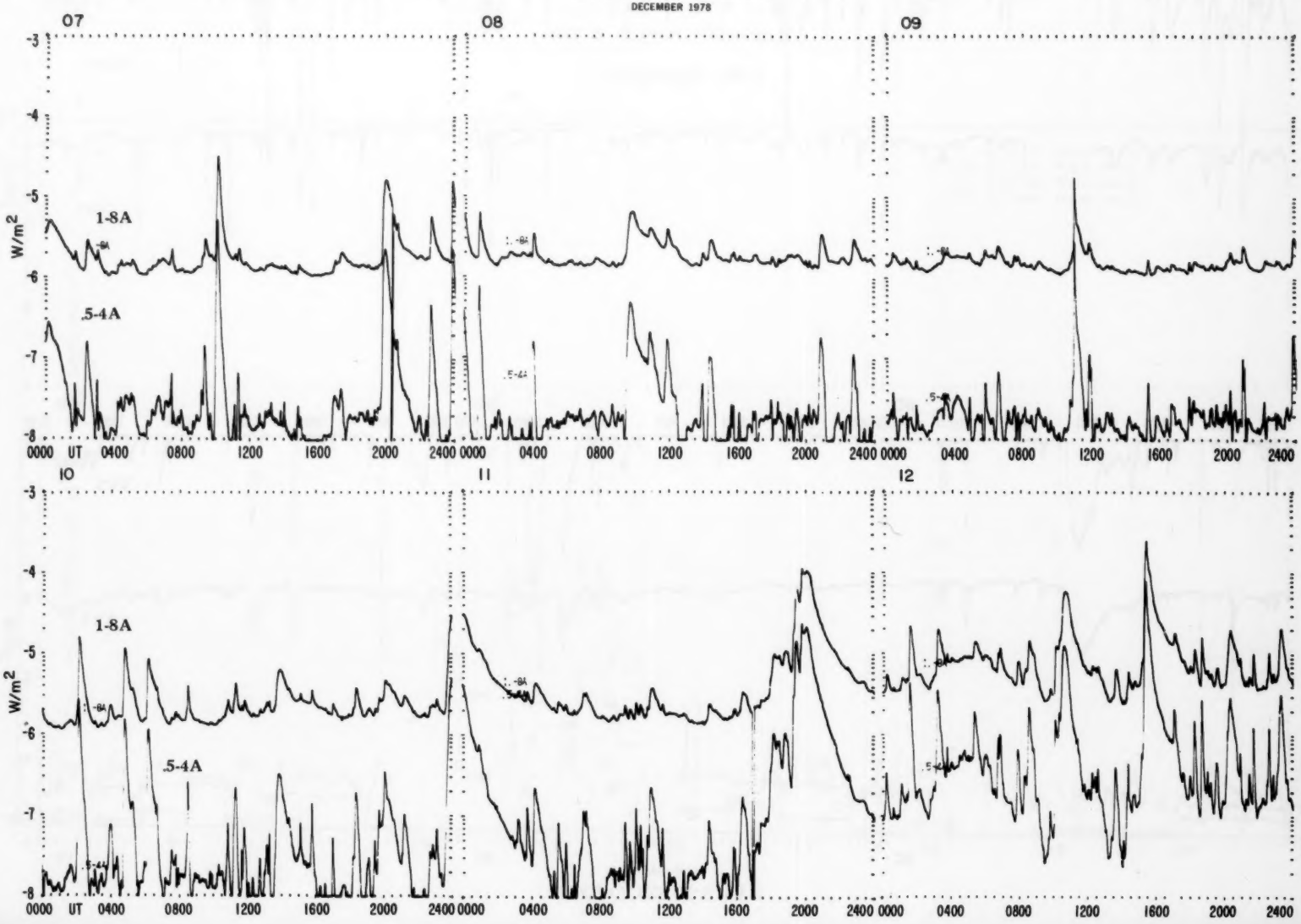
DECEMBER 1978

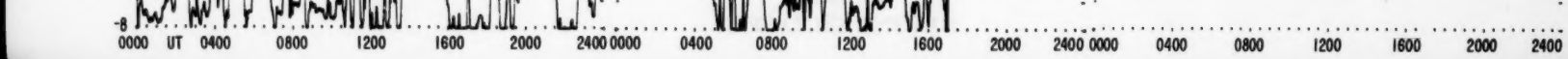



SMS-GOES X-RAYS
DECEMBER 1978
01
02
03
04
05
06
W/m2
1-8A
.5-4A
-3
-4
-5
-6
-7
-8
0000 UT 0400 0800 1200 1600 2000 2400

SMS-GOES X-RAYS

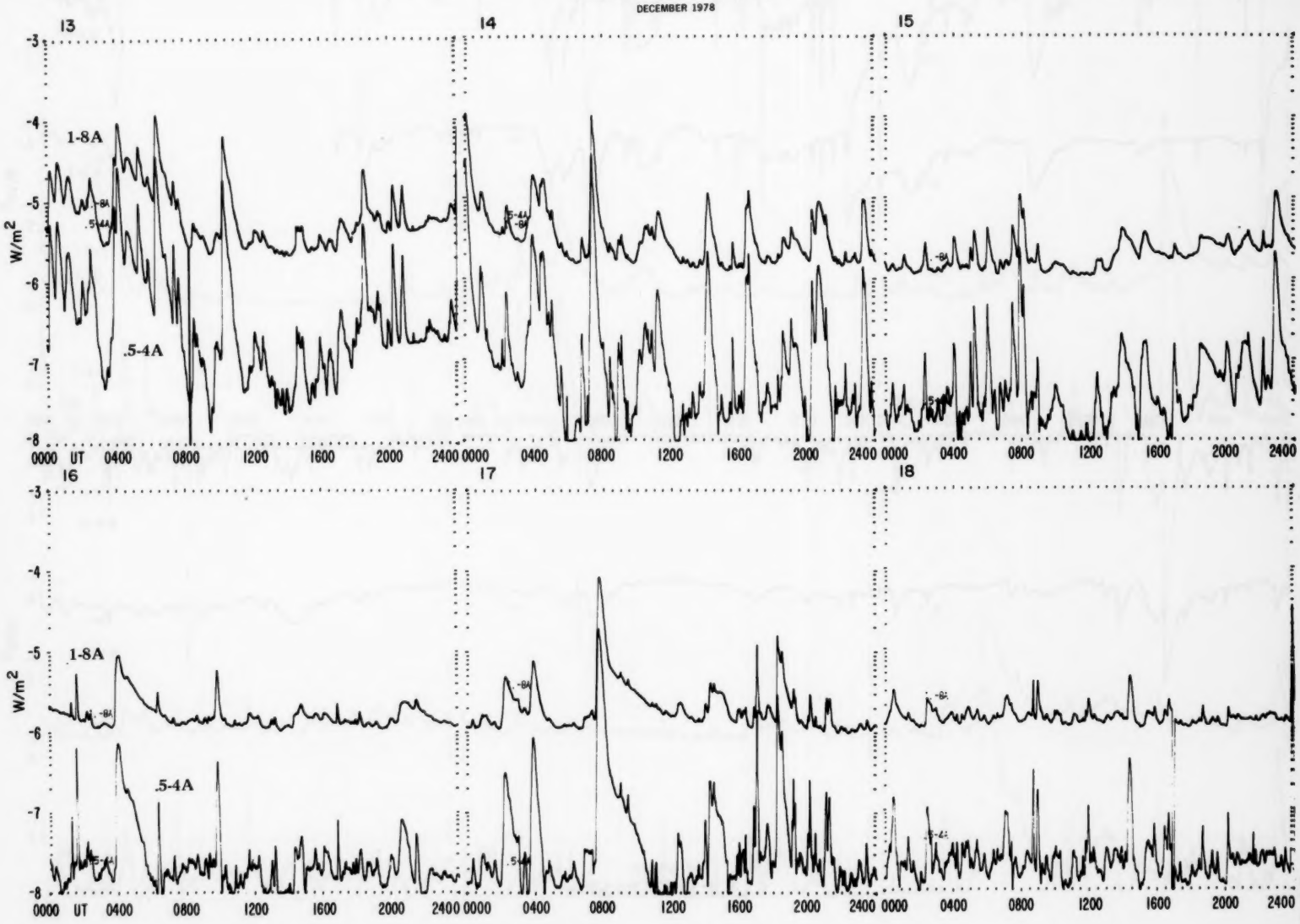
DECEMBER 1978





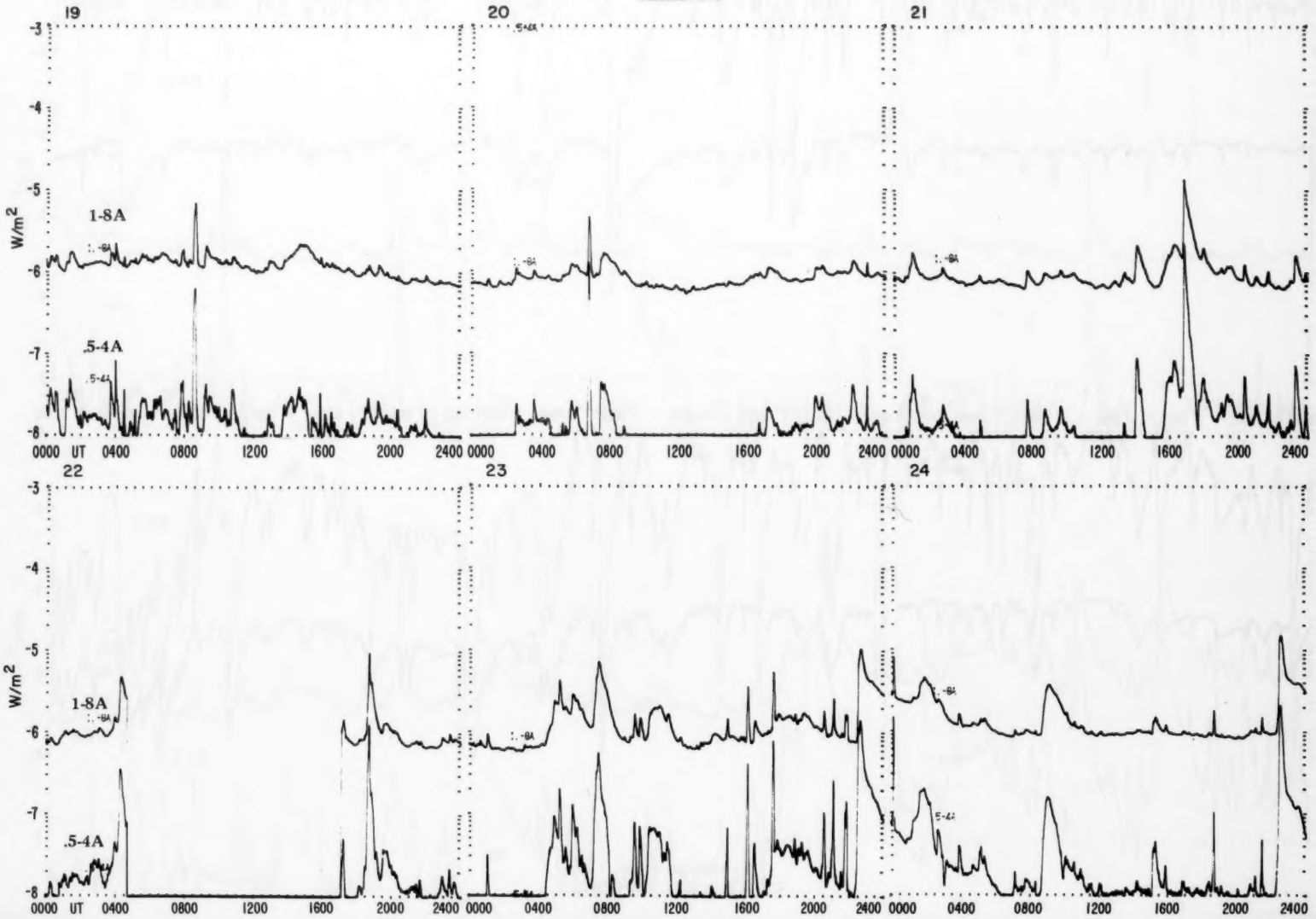
SMS-GOES X-RAYS

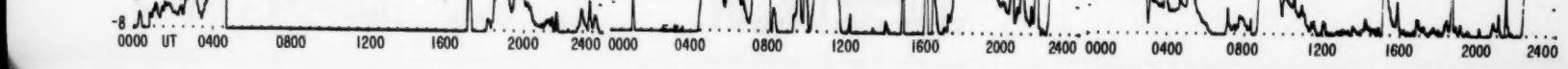
DECEMBER 1978



SMS-GOES X-RAYS

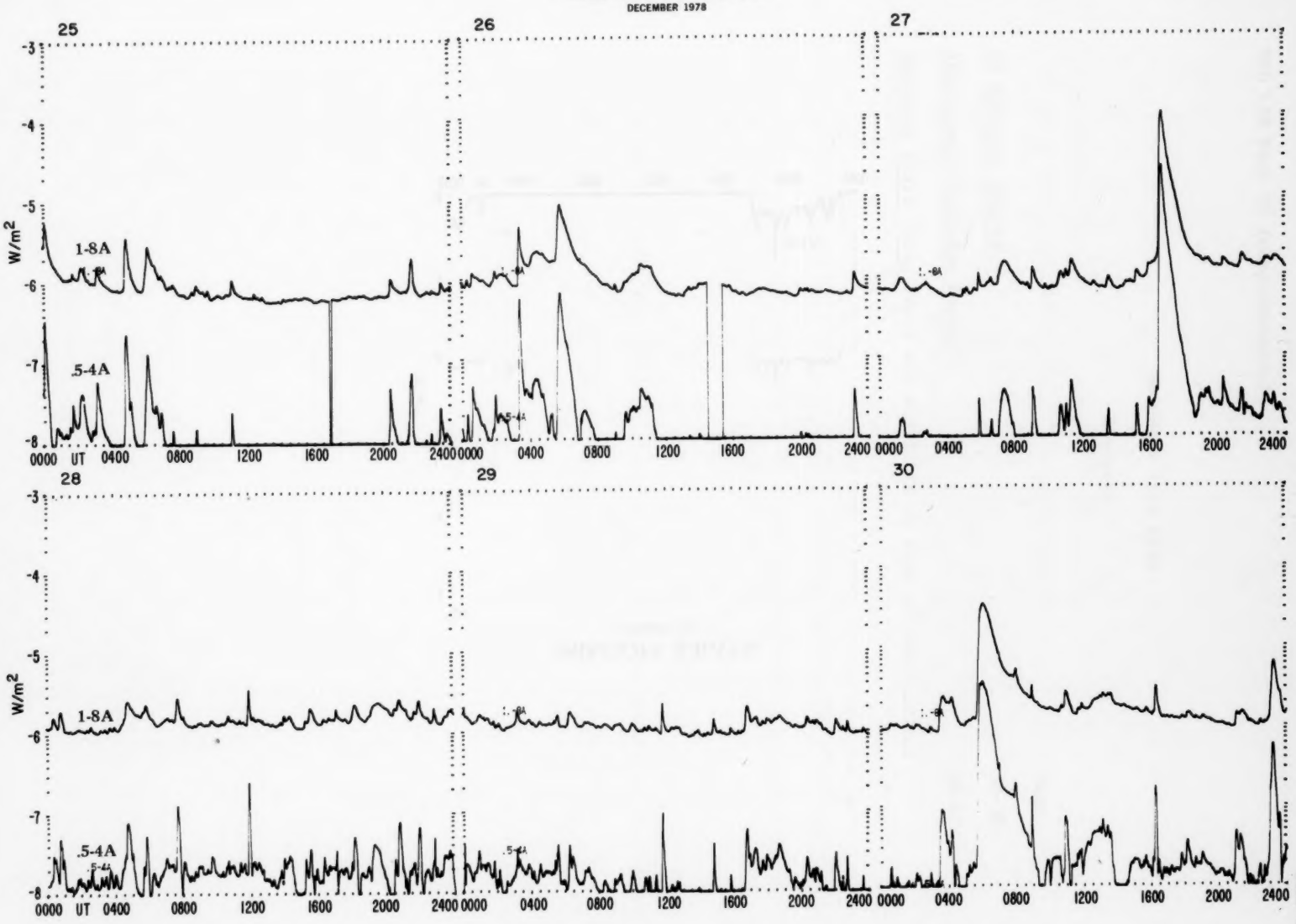
DECEMBER 1978

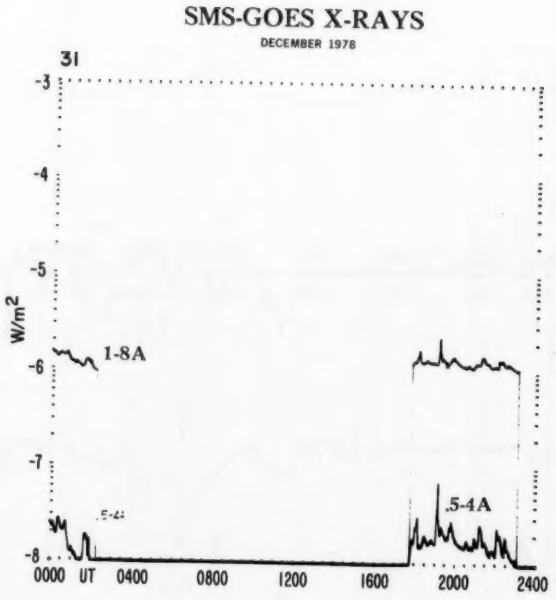




SMS-GOES X-RAYS

DECEMBER 1978




SMS-GOES X-RAYS
DECEMBER 1978
31
-3
-4
-5
-6
-7
-8
W/m2
1-8A
.5-4A
0000 UT
0400
0800
1200
1600
2000
2400

SGD 418 Part II (Comprehensive)

NOVEMBER 1978 DATA

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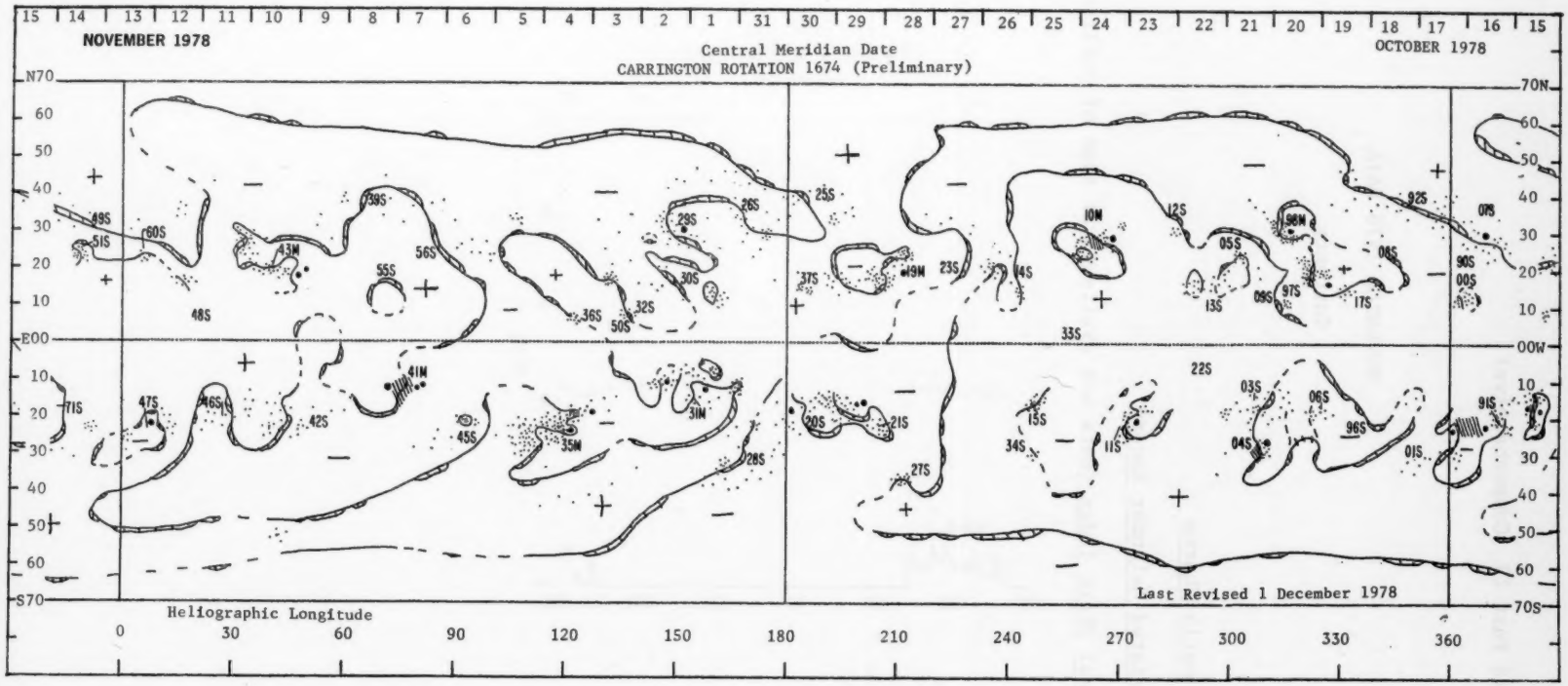
Abbreviated Calendar Record	40-47
Regional Flare Index (Data not available at time of publication)	

ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

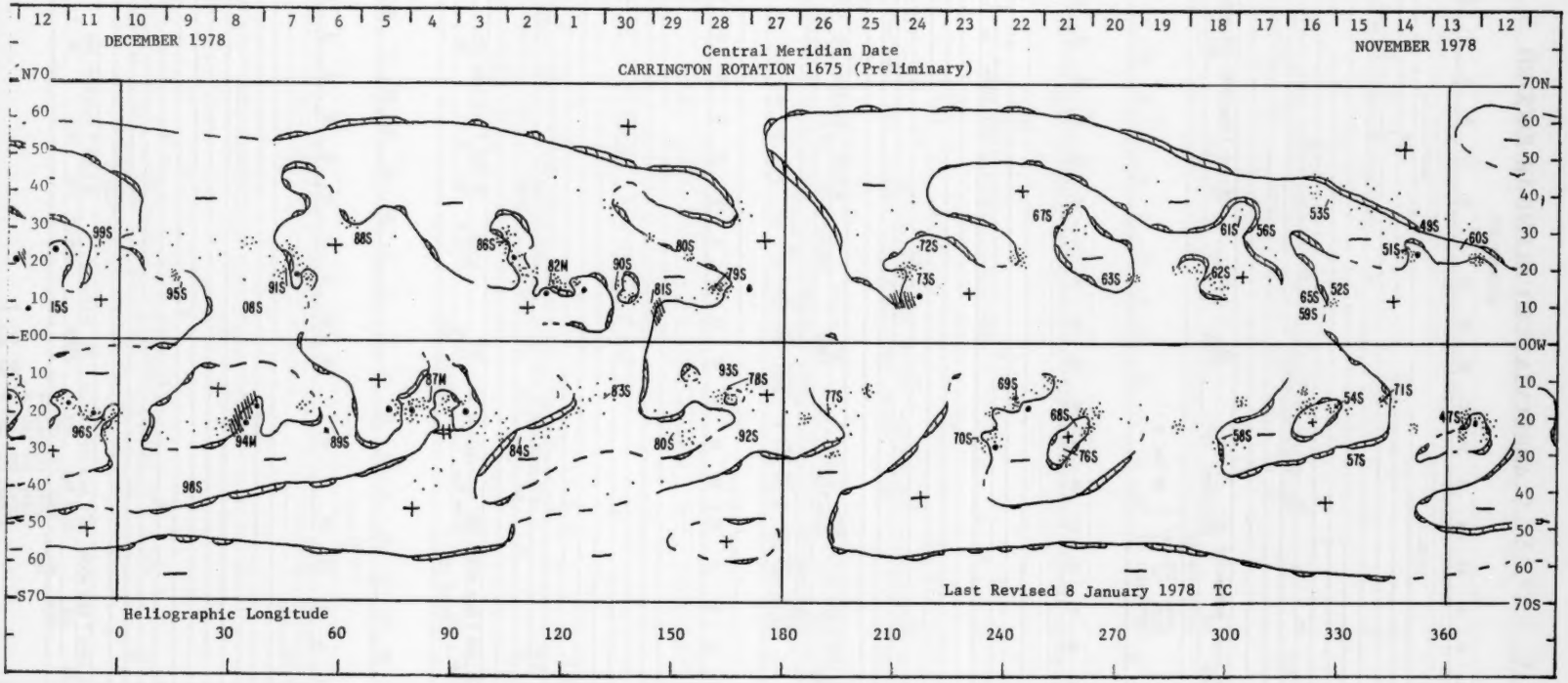
OCTOBER - NOVEMBER 1978



ABBREVIATED CALENDAR RECORD

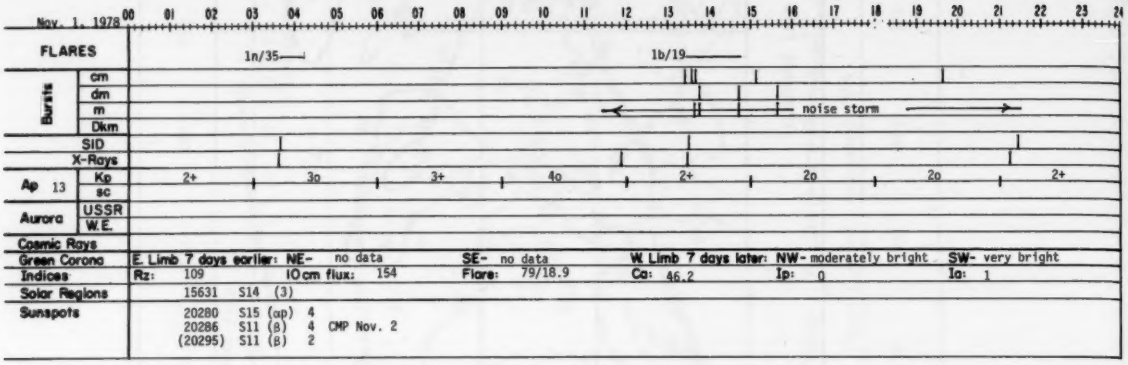
Hα SYNOPTIC CHART

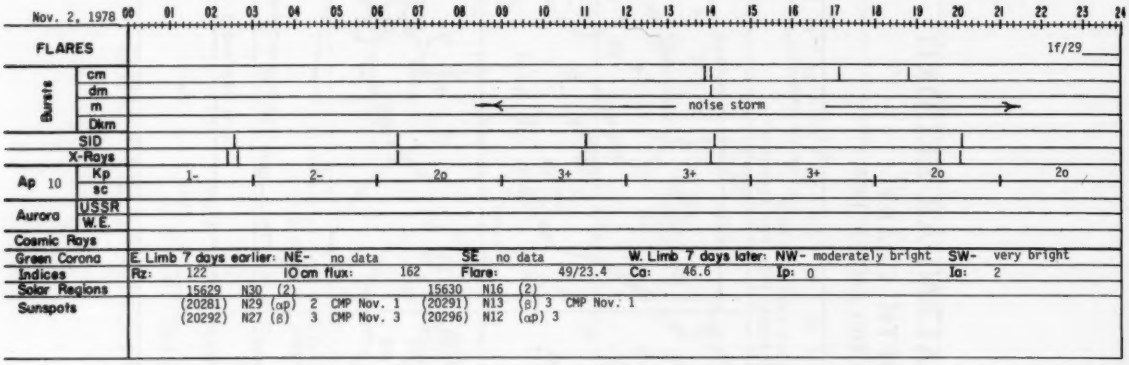
NOVEMBER - DECEMBER 1978

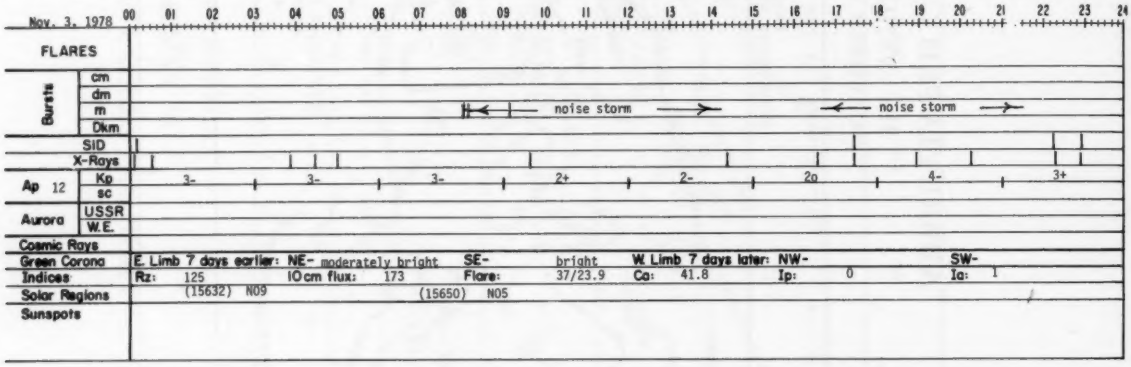


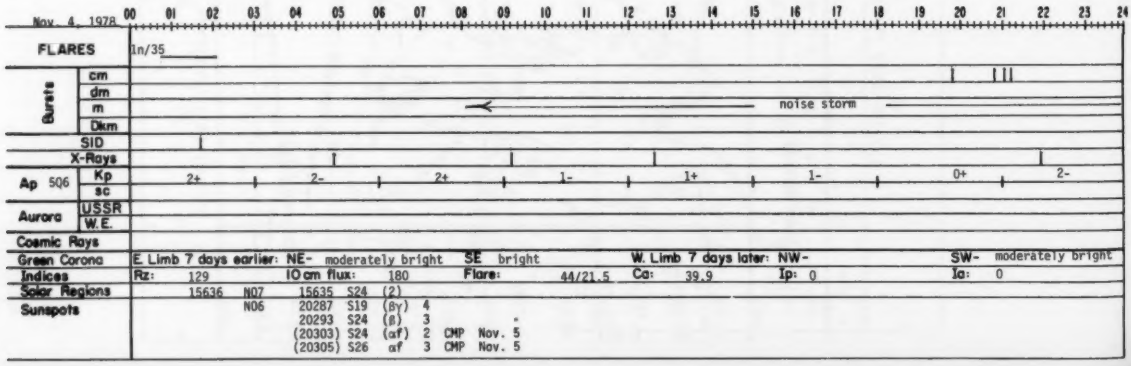
ABBREVIATED CALENDAR RECORD

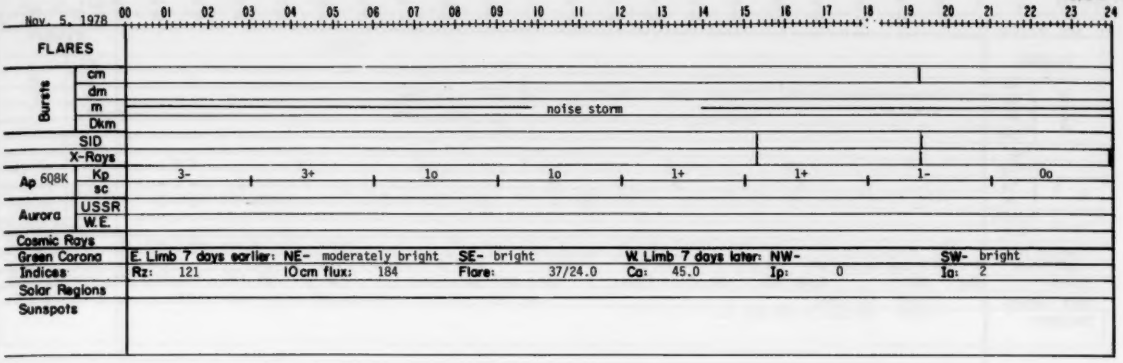
NOVEMBER 1978

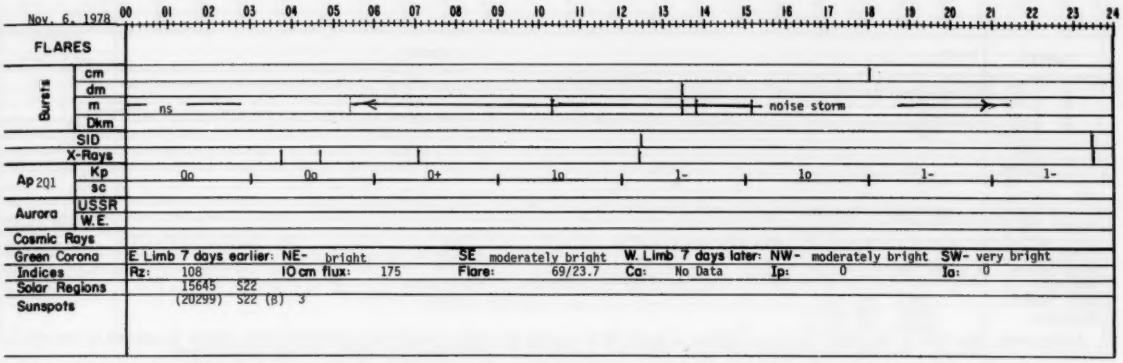


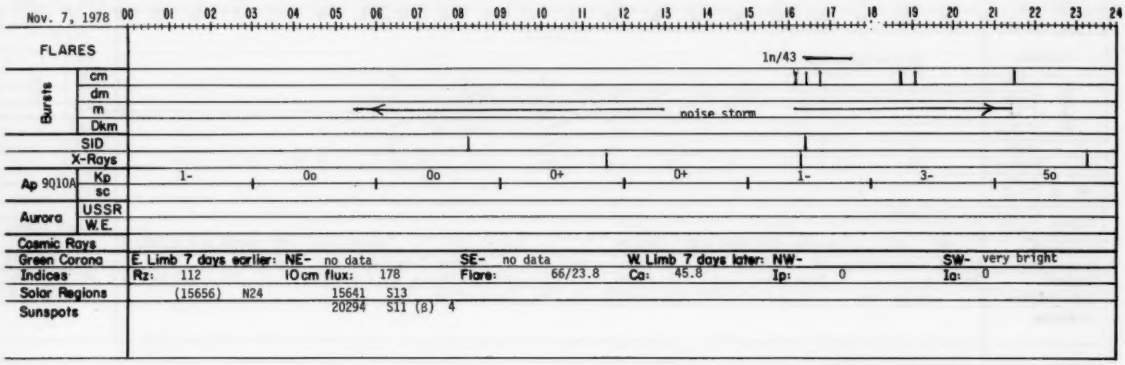


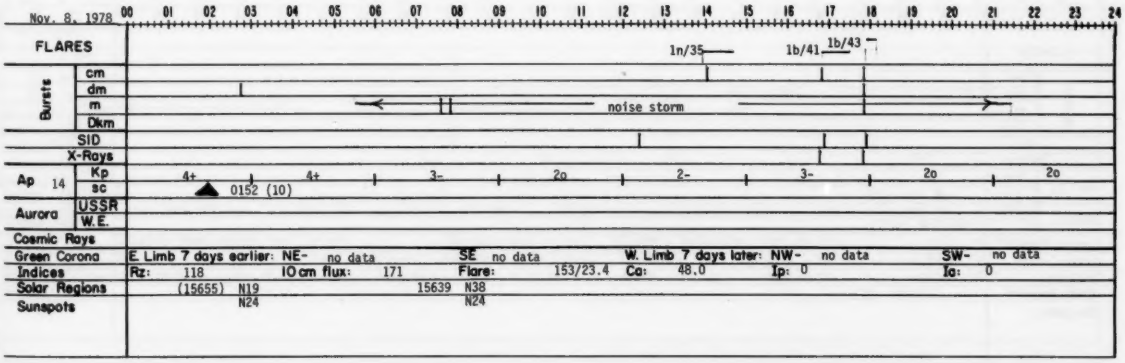


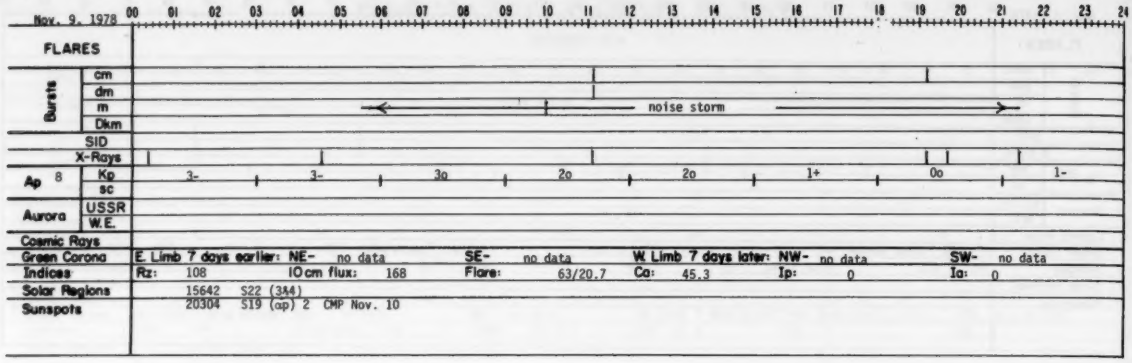


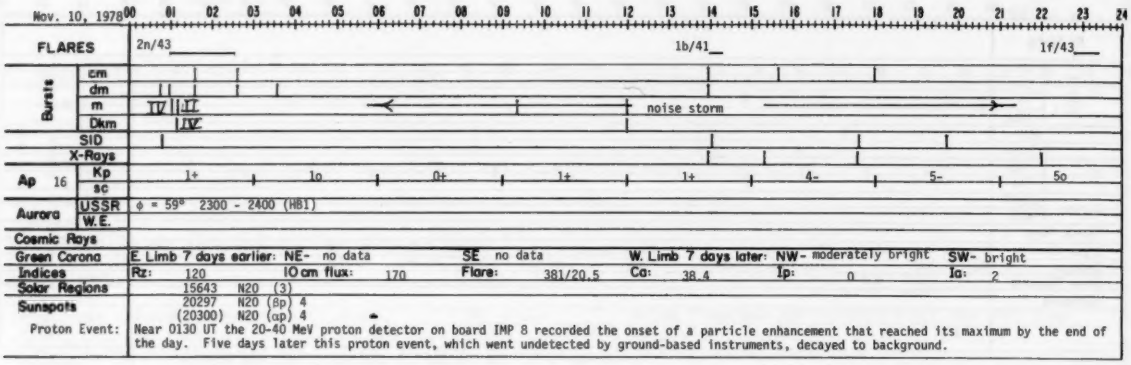

Nov. 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6Q8K
Kp
sc
3- 3+ 1o 1o 1+ 1+ 1- 0o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- bright W. Limb 7 days later: NW- SW- bright
Indices
Rz: 121 10cm flux: 184 Flare: 37/24.0 Ca: 45.0 Ip: 0 Ia: 2
Solar Regions
Sunspots

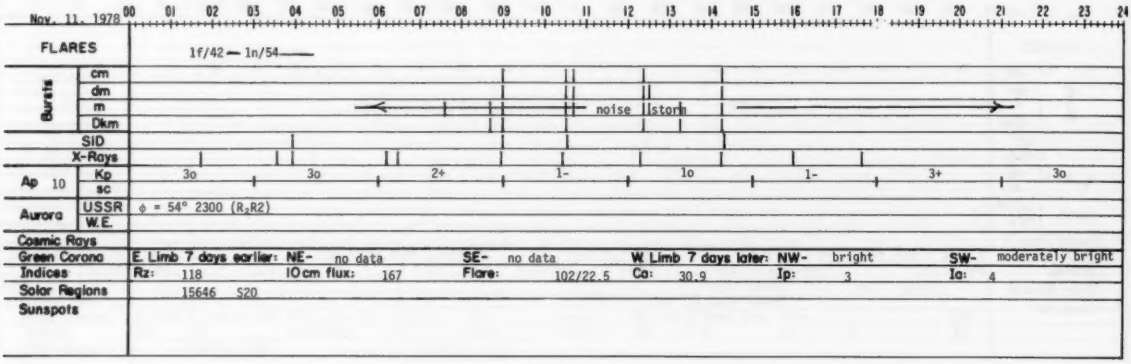

Nov. 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 2Q1
Kp
sc
0o 0o 0+ 1o 1- 1o 1- 1-
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE moderately bright W. Limb 7 days later: NW- moderately bright SW- very bright
Indices
Rz: 108 10cm flux: 175 Flare: 69/23.7 Ca: No Data Ip: 0 Ia: 0
Solar Regions
15645 S22
Sunspots
(20299) S22 (8) 3

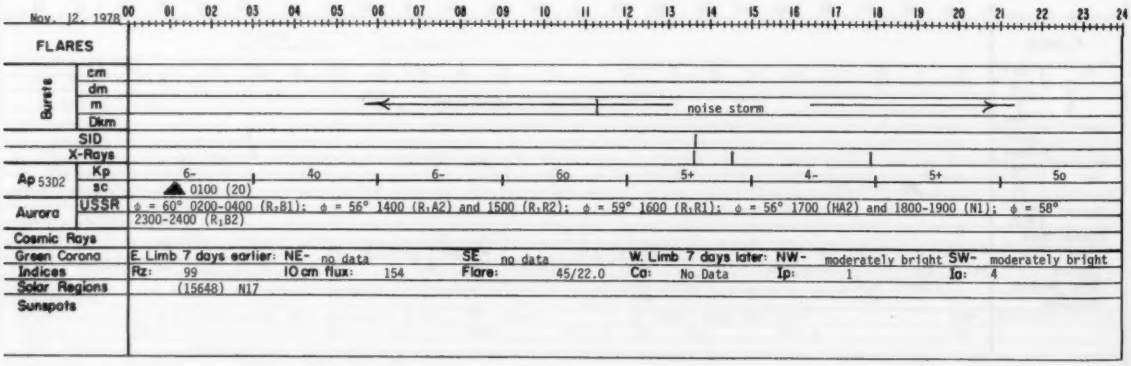

Nov. 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/43
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9Q10A
Kp
sc
1- 0o 0o 0+ 0+ 1- 3- 5o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW- very bright
Indices
Rz: 112 10cm flux: 178 Flare: 66/23.8 Ca: 45.8 Ip: 0 Ia: 0
Solar Regions
(15656) N24 15641 S13
Sunspots
20294 S11 (8) 4


Nov. 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/35
1b/41
1b/43
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 14
Kp
sc
4+ 4+ 3- 2o 2- 3- 2o 2o
0152 (10)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 118 10cm flux: 171 Flare: 153/23.4 Ca: 48.0 Ip: 0 Ia: 0
Solar Regions
(15655) N19 15639 N38
Sunspots
N24 N24

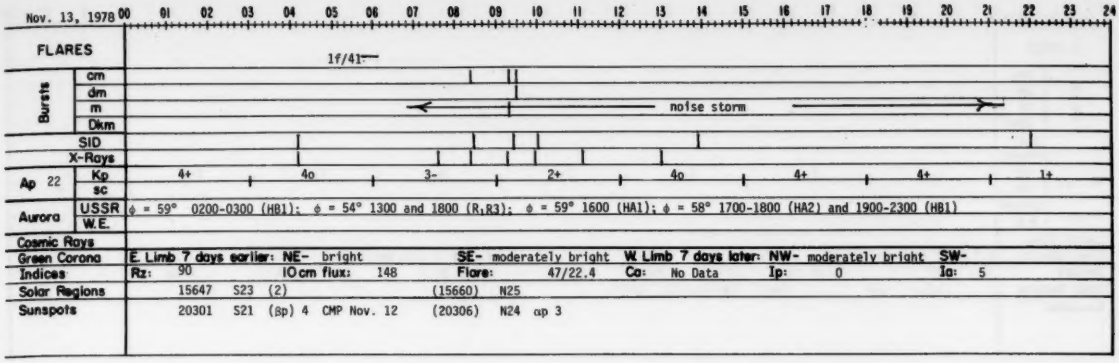

Nov. 9, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 8
Kp
3- 3- 3o 2o 2o 1+ 0o 1-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 108 IOcm flux: 168 Flare: 63/20.7 Ca: 45.3 Ip: 0 Ia: 0
Solar Regions
15642 S22 (3A4)
Sunspots
20304 S19 (αp) 2 CMP Nov. 10


Nov. 10, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2n/43
1b/41
1f/43
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 16
Kp
1+ 1o 0+ 1+ 1+ 4- 5- 5o
sc
Aurora
USSR
φ = 59° 2300 - 2400 (HB1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 120 IOcm flux: 170 Flare: 381/20.5 Ca: 38.4 Ip: 0 Ia: 2
Solar Regions
15643 N20 (3)
Sunspots
20297 N20 (βp) 4
(20300) N20 (αp) 4
Proton Event:
Near 0130 UT the 20-40 MeV proton detector on board IMP 8 recorded the onset of a particle enhancement that reached its maximum by the end of the day. Five days later this proton event, which went undetected by ground-based instruments, decayed to background.

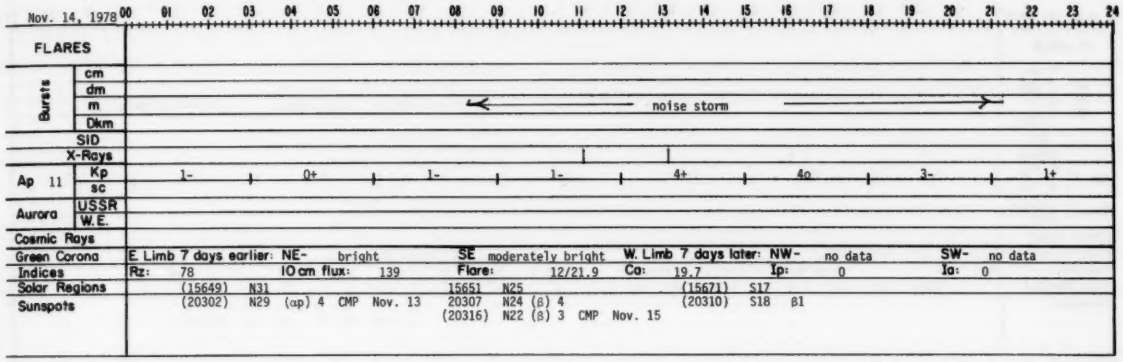

Nov. 11, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/42
1n/54
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 10
Kp
3o 3o 2+ 1- 1o 1- 3+ 3o
sc
Aurora
USSR
φ = 54° 2300 (R2R2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- bright SW- moderately bright
Indices
Rz: 118 IOcm flux: 167 Flare: 102/22.5 Ca: 30.9 Ip: 3 Ia: 4
Solar Regions
15646 S20
Sunspots


Nov. 12, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 5302
Kp
6- 4o 6- 6o 5+ 4- 5+ 5o
sc
0100 (20)
Aurora
USSR
φ = 60° 0200-0400 (R1B1); φ = 56° 1400 (R1A2) and 1500 (R1R2); φ = 59° 1600 (R1R1); φ = 56° 1700 (HA2) and 1800-1900 (N1); φ = 58° 2300-2400 (R1B2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 99 IOcm flux: 154 Flare: 45/22.0 Ca: No Data Ip: 1 Ia: 4
Solar Regions
(15648) N17
Sunspots

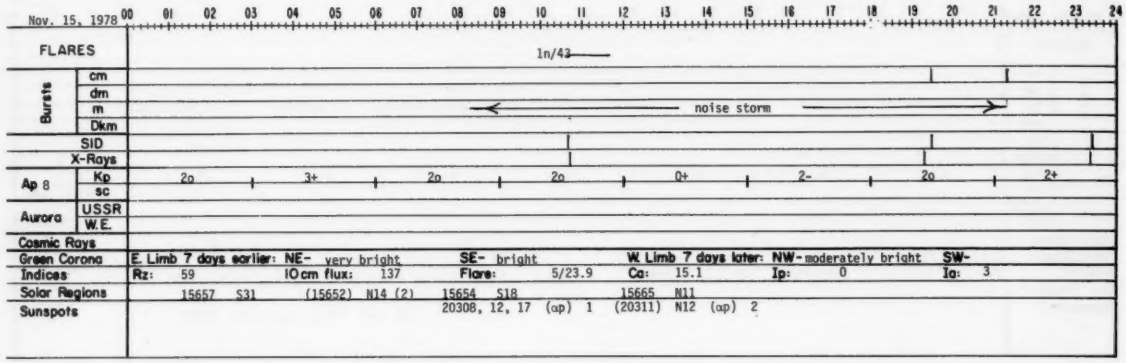
Nov. 13, 1978



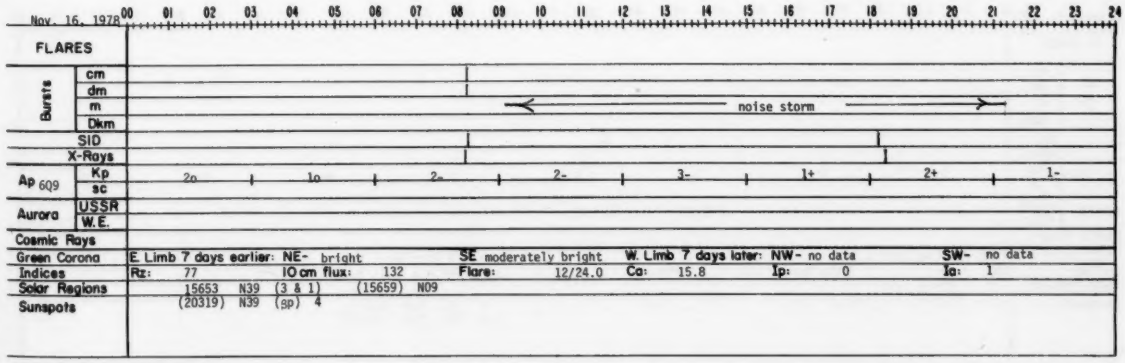
Nov. 14, 1978

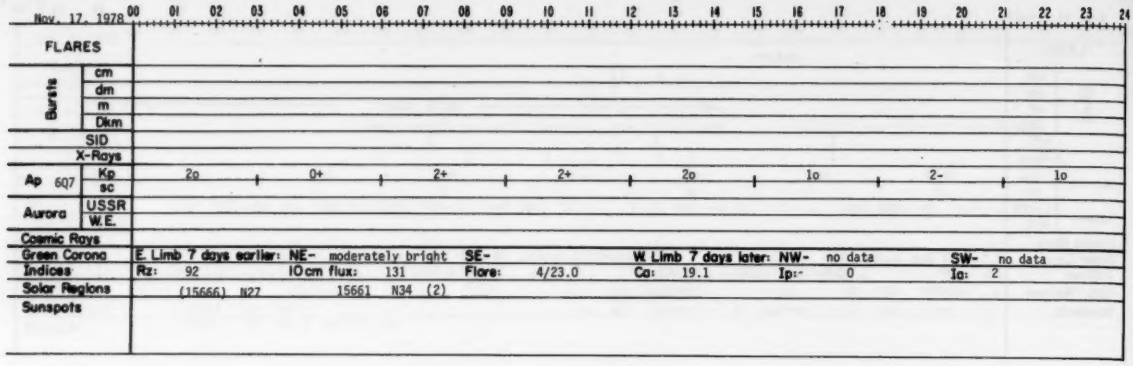


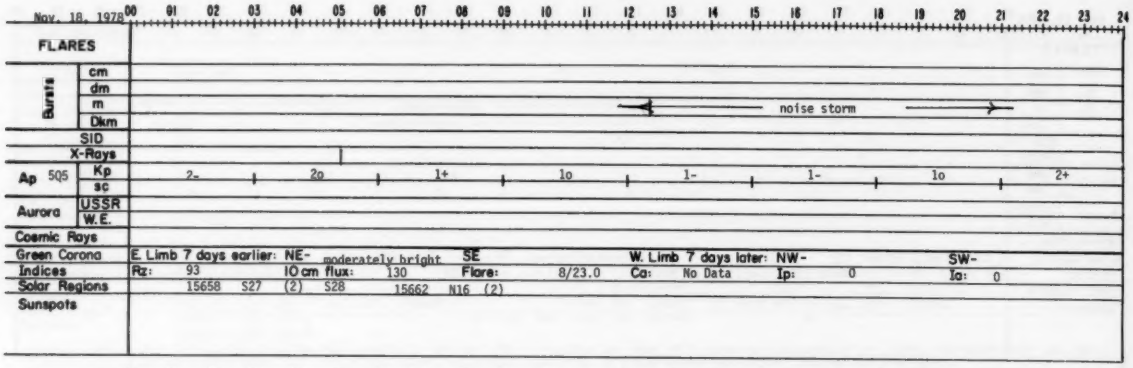
Nov. 15, 1978

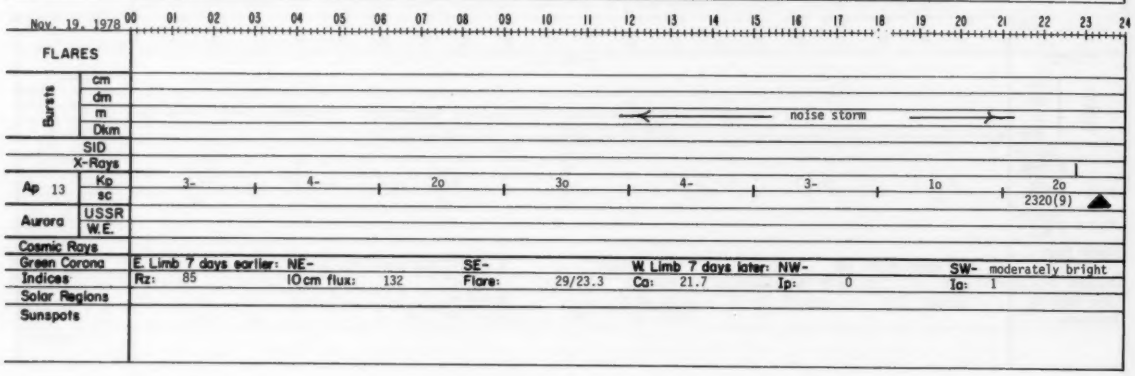


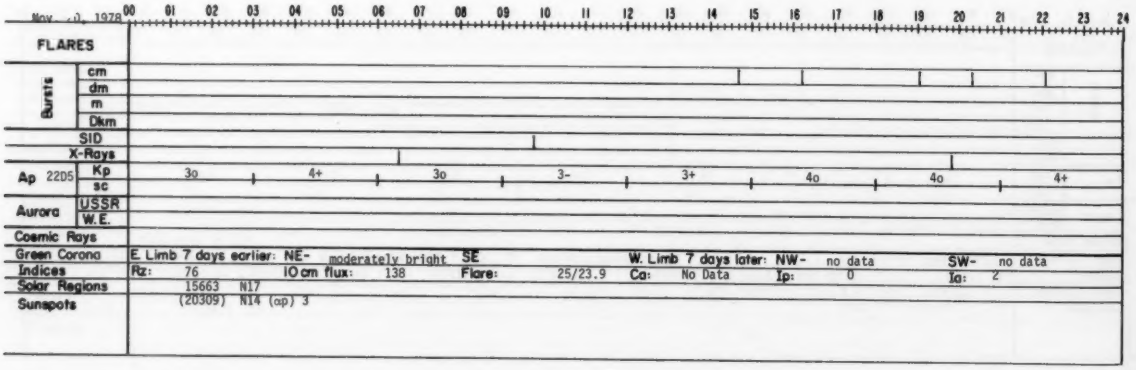
Nov. 16, 1978




Nov. 17, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 607
Kp
sc
2o 0+ 2+ 2+ 2o 1o 2- 1o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE-
W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 92 10cm flux: 131 Flare: 4/23.0 Ca: 19.1 Ip:- 0 Ia: 2
Solar Regions
(15666) N27 15661 N34 (2)
Sunspots


Nov. 18, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 505
Kp
sc
2- 2o 1+ 1o 1- 1- 1o 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE
W. Limb 7 days later: NW- SW-
Indices
Rz: 93 10cm flux: 130 Flare: 8/23.0 Ca: No Data Ip: 0 Ia: 0
Solar Regions
15658 S27 (2) S28 15662 N16 (2)
Sunspots


Nov. 19, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 13
Kp
sc
3- 4- 2o 3o 4- 3- 1o 2o
2320(9)
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE-
W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 85 10cm flux: 132 Flare: 29/23.3 Ca: 21.7 Ip: 0 Ia: 1
Solar Regions
Sunspots


Nov. 20, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 2205
Kp
sc
3o 4+ 3o 3- 3+ 4o 4o 4+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE
W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 76 10cm flux: 138 Flare: 25/23.9 Ca: No Data Ip: 0 Ia: 2
Solar Regions
15663 N17
(20309) N14 (αp) 3
Sunspots

Nov. 21, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES 1n/72

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 16 — Kp: 4+ 4- 3+ 3- 2- 2+ 2o 4-

Aurora: USSR, W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- SW- bright

Indices — Rz: 68 10cm flux: 129 Flare: 45/23.1 Ca: No Data Ip: 0 Ia: 1

Solar Regions: 15668 S22 (15676) S30 15667 N34 (3)

Sunspots: (20313) S25 (αp) 2 CMP Nov. 20 (20320) S31 (αp) 2

Nov. 22, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 28D4 — Kp: 4o 4- 4+ 4- 5o 5o 3o 2+

Aurora: USSR, W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data

Indices — Rz: 77 10cm flux: 130 Flare: 14/23.2 Ca: No Data Ip: 0 Ia: 6

Solar Regions: 15669 S16 (2)

Sunspots: 20314 S18 (αp) 2 CMP Nov. 21; (20322) S12 (β) 3 CMP Nov. 21

Nov. 23, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 12 — Kp: 2- 1- 1o 3o 4- 3+ 3o 3-

Aurora: USSR, W.E.

Cosmic Rays

Green Corona — E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- SW- moderately bright

Indices — Rz: 55 10cm flux: 125 Flare: 8/21.1 Ca: No Data Ip: 0 Ia: 2

Solar Regions: 15670 S27 (2)

Sunspots: 20315 S28 (αp) 3 CMP Nov. 22

Nov. 24, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FLARES

Bursts: cm, dm, m, Dkm

SID

X-Rays

Ap 18 — Kp: 2+ 3- 2o 2- 4- 4- 4+ 4+

Aurora: USSR — ϕ = 59° 1700-1900 (R_{1-2}R2); ϕ = 58° 2000 and 2400 (HB1-2) and 2100 - 2300 (R_2R2-3); W.E.

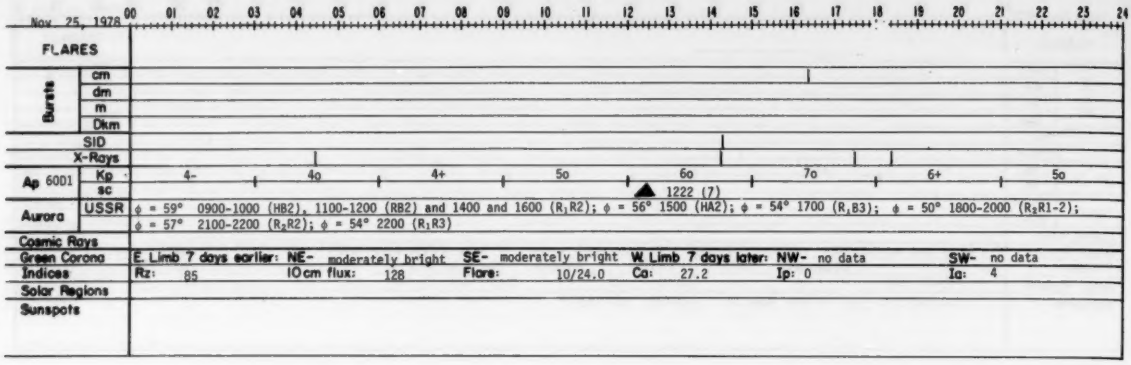
Cosmic Rays

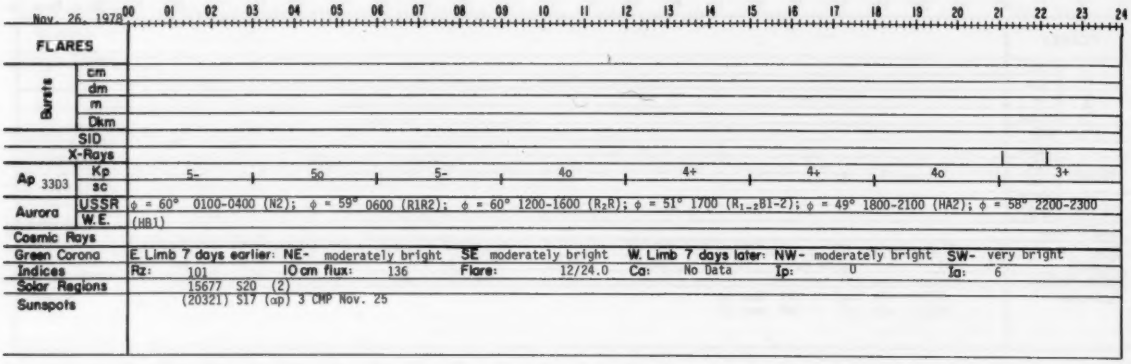
Green Corona — E. Limb 7 days earlier: NE- moderately bright SE moderately bright W. Limb 7 days later: NW- moderately bright SW- moderately bright

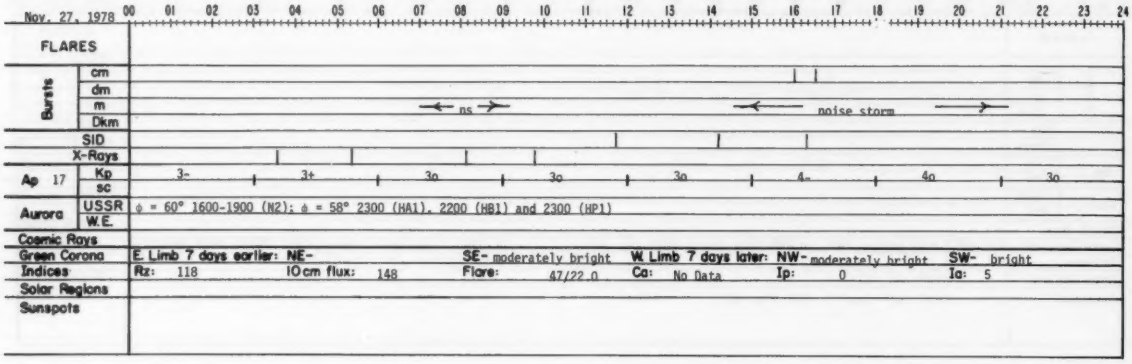
Indices — Rz: 61 10cm flux: 127 Flare: 25/23.9 Ca: No Data Ip: 0 Ia: 1

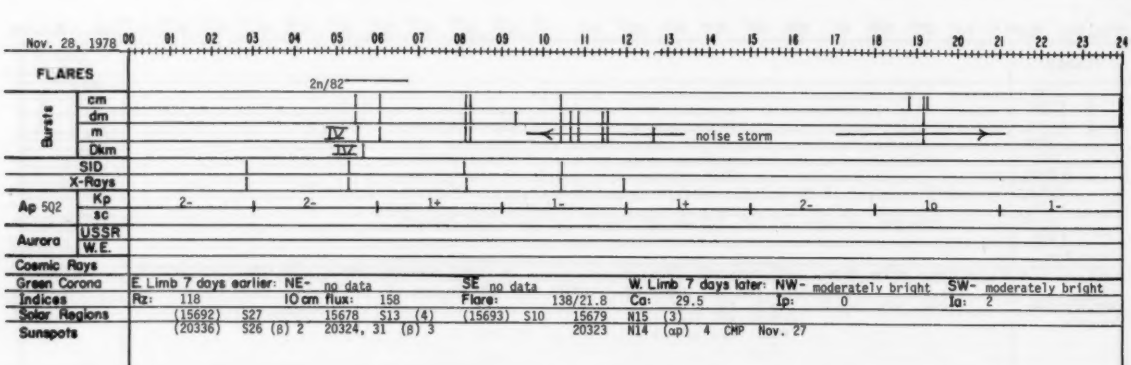
Solar Regions: 15672 N26 (3 & 4) 15673 N16 (3 & 4)

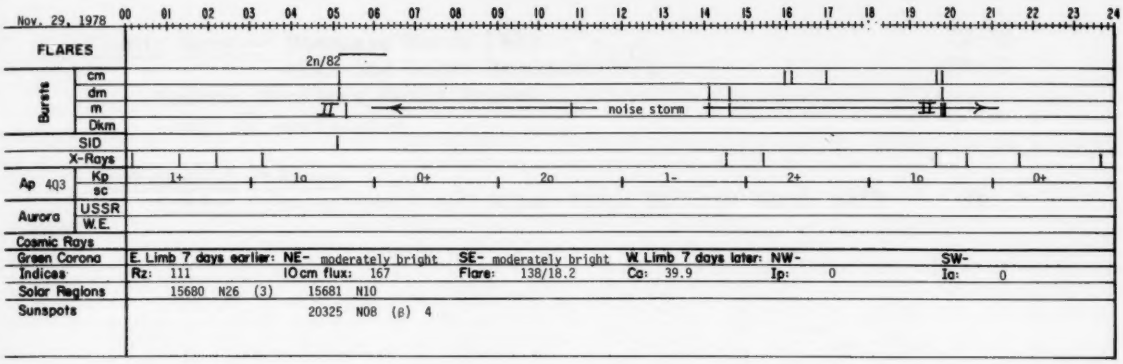
Sunspots: (20318) N15 (αp) 3; (20330) N13 (β) 4

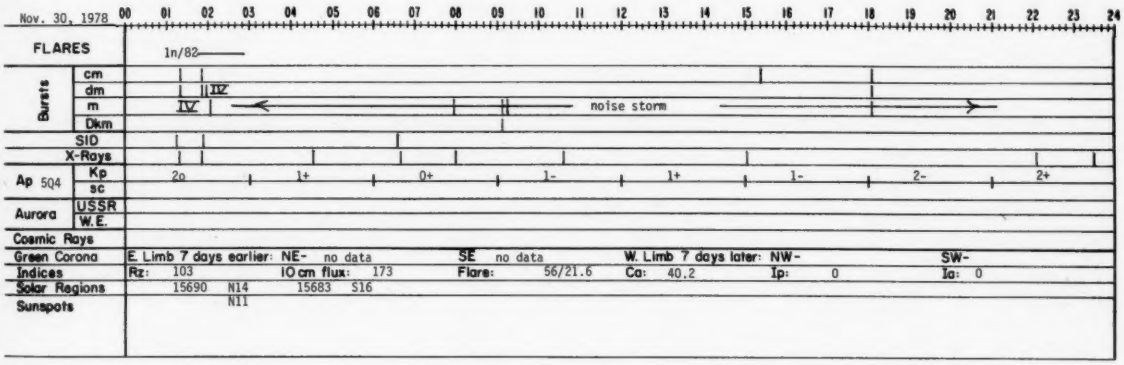

Nov. 25, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 6001
Kp 4- 4o 4+ 5o 6o 7o 6+ 5o
sc
1222 (7)
Aurora
USSR ϕ = 59° 0900-1000 (HB2), 1100-1200 (RB2) and 1400 and 1600 (R1R2); ϕ = 56° 1500 (HA2); ϕ = 54° 1700 (R1B3); ϕ = 50° 1800-2000 (R2R1-2); ϕ = 57° 2100-2200 (R2R2); ϕ = 54° 2200 (R1R3)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 85 10cm flux: 128 Flare: 10/24.0 Ca: 27.2 Ip: 0 Ia: 4
Solar Regions
Sunspots


Nov. 26, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
SID
X-Rays
Ap 3303
Kp 5- 5o 5- 4o 4+ 4+ 4o 3+
sc
Aurora
USSR ϕ = 60° 0100-0400 (N2); ϕ = 59° 0600 (R1R2); ϕ = 60° 1200-1600 (R2R); ϕ = 51° 1700 (R1-2B1-2); ϕ = 49° 1800-2100 (HA2); ϕ = 58° 2200-2300 (HB1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE moderately bright W. Limb 7 days later: NW- moderately bright SW- very bright
Indices
Rz: 101 10cm flux: 136 Flare: 12/24.0 Ca: No Data Ip: 0 Ia: 6
Solar Regions
15677 S20 (2)
Sunspots
(20321) S17 (αp) 3 CMP Nov. 25


Nov. 27, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 17
Kp 3- 3+ 3o 3o 3o 4- 4o 3o
sc
Aurora
USSR ϕ = 60° 1600-1900 (N2); ϕ = 58° 2300 (HA1), 2200 (HB1) and 2300 (HP1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE- moderately bright W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 118 10cm flux: 148 Flare: 47/22.0 Ca: No Data Ip: 0 Ia: 5
Solar Regions
Sunspots


Nov. 28, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2n/82
Bursts
cm
dm
m
IV
IV
noise storm
Dkm
SID
X-Rays
Ap 502
Kp 2- 2- 1+ 1- 1+ 2- 1o 1-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 118 10cm flux: 158 Flare: 138/21.8 Ca: 29.5 Ip: 0 Ia: 2
Solar Regions
(15692) S27 15678 S13 (4) (15693) S10 15679 N15 (3)
Sunspots
(20336) S26 (B) 2 20324, 31 (B) 3 20323 N14 (αp) 4 CMP Nov. 27


Nov. 29, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2n/82
Bursts
cm
dm
m
Dkm
II
noise storm
II
SID
X-Rays
Ap 4Q3
Kp
sc
1+ 1o 0+ 2o 1- 2+ 1o 0+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- SW-
Indices
Rz: 111 IOcm flux: 167 Flare: 138/18.2 Ca: 39.9 Ip: 0 Ia: 0
Solar Regions
15680 N26 (3) 15681 N10
Sunspots
20325 N08 (β) 4


Nov. 30, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/82
Bursts
cm
dm
III
m
IV
noise storm
Dkm
SID
X-Rays
Ap 5Q4
Kp
sc
2o 1+ 0+ 1- 1+ 1- 2- 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- SW-
Indices
Rz: 103 IOcm flux: 173 Flare: 56/21.6 Ca: 40.2 Ip: 0 Ia: 0
Solar Regions
15690 N14 15683 S16
N11
Sunspots

SGD 418 Part II (Comprehensive)

Miscellaneous Data

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ERRATA: The Regions of Solar Activity for January 1979 and February 1979 are being republished in this issue because a computer error omitted sunspot data from all stations reporting except Mt. Wilson. The error occurred for the January data after January 18 and for the February data after February 11..

REGIONS OF SOLAR ACTIVITY

JANUARY 1979

MCMATH REGION 15739 CMP DATE 1.6

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	27	15739	S33 E66	72	400	2.5									
78	12	28	15739	S33 E53	73	1000	3.5		S31 E49				B	70	2	CAO
78	12	29	15739					20377	S33 E38	74	(B)	3	H	100	9	DSO
78	12	30	15739					20377	S33 E25	75	(BY)	4	B	210	11	DAI
78	12	31	15739					20377	S32 E12	75	(B)	3	R	180	15	DAO
79	1	1	15739					20377	S32 W03		(BP)	3				
79	1	2	15739	S33 W14	74	1800	2.5	20377	S32 W16	75	BP	4	H	240	14	EKO
79	1	3	15739	S33 W28	75	2000	2.5		S33 W40				H	70	1	HSX
79	1	4	15739	S33 W40	75	2000	2.5	20377	S32 W47	80	(AP)	4				
79	1	5	15739	S33 W51	72	1600	2.5									
79	1	6	15739	S33 W60	68	1800	2.5	20377	S32 W72	80	(AP)	3	R	60	1	HSX
79	1	8	15739	S33 W85	67	300	1.0									

MCMATH REGION 15752 CMP DATE 1.9

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	3	15752	N25 W23	70	200	2.0		N26 W27				H	10	1	AXX
79	1	4	15752	N25 W36	71	200	2.0		N26 W39				H	10	1	AXX

MCMATH REGION 15742 CMP DATE 2.4 (PROBABLY NEW)

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	1	15742					20385	S20 E11		(AP)	3				
79	1	2	15742	S20 W83	63	800	2.5	20385	S20 W03	62	B	3	H	30	6	DRO
79	1	3	15742	S20 W15	62	1000	2.5		S20 W18				H	40	5	DRO
79	1	4	15742	S20 W28	63	800	2.5	20385	S19 W30	63	(BP)	3	H	40	4	DRO
79	1	5	15742	S20 W41	62	700	1.5		S18 W43				B	20	2	CSO
79	1	6	15742	S20 W54	62	700	2.0	20385	S20 W60	68	(AP)	3	R	20	4	BXO
79	1	8	15742	S20 W81	63	500	1.5									

MCMATH REGION 15755 CMP DATE 3.1

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15755	N26 W47	55	300	2.5	20389	N26 W49	57	(AP)	2	R	20	3	BXO
79	1	8	15755	N26 W77	59	1000	2.5	20389	N26 W69	51	B	3				

MCMATH REGION 15743 CMP DATE 3.7 POSSIBLE RETURN OF REGION 15688 ROTATION 2

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15743	N29 E13	47	500	1.0									
79	1	3	15743	N29 E01	46	500	1.5									

MCMATH REGION 15741 CMP DATE 3.8

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	28	15741	S12 E85	41	500	3.0									
78	12	29	15741					20381	S18 E75	37	(AP)	2	H	90	1	HSX
78	12		15741					20380	S11 E70	42	AP	2	H	40	1	HSX
78	12	30	15741					20381	S18 E61	39	(AP)	3	B	60	1	HSX
78	12		15741					20380	S12 E59	41	(AF)	3	B	80	6	DSI
78	12	31	15741					20381	S19 E48	39	(AP)	3				
78	12		15741					20380	S12 E44	43	(B)	4	R	90	12	DSO
79	1	1	15741					20381	S19 E34		(AP)	4				
79	1		15741					20380	S12 E29		(B)	4				
79	1	2	15741	S13 E16	44	2300	3.0	20380	S12 E15	44	B	4	H	200	26	DKI
79	1	3	15741	S13 E03	44	2800	3.0		S12 E00				H	320	32	EKI
79	1	4	15741	S13 W08	43	3000	2.5	20380	S12 W11	44	(BF)	4	H	280	27	EKI
79	1	5	15741	S13 W21	42	2500	2.5		S12 W24				B	200	16	EAO
79	1	6	15741	S13 W33	41	2800	3.0	20380	S13 W37	45	(B)	3	R	120	18	EAO
79	1	8	15741	S13 W63	45	2800	2.5	20380	S13 W61	43	B	3				
79	1	9	15741	S13 W76	43	2800	2.5									
79	1	10	15741	S13 W89	44	700	2.0									

REGIONS OF SOLAR ACTIVITY

JANUARY 1979

HCMATH REGION 15744 CMP DATE 4.0 RETURN OF PART OF REGION 15691 ROTATION 5

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	1	15744					20379	N17 E29		AP	2				
79	1	2	15744	N19 E20	40	900	2.0	20379	N17 E16	43	AP	2	M	20	1	HRX
79	1	3	15744	N20 E05	42	1200	2.0									
79	1	4	15744	N19 W10	45	1100	2.0									
79	1	5	15744	N19 W21	42	1200	2.0		N17 W32				B	30	3	CSO
79	1	6	15744	N18 W38	46	1200	3.0	20388	N16 W43	51	(BF)	4	R	60	11	DRO
79	1	8	15744	N18 W68	50	1200	3.0	20388	N16 W70	52	AP	2	M	40	3	CRO
79	1	9	15744	N18 W81	48	800	1.0									

HCMATH REGION 15740 CMP DATE 4.4

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	29	15740					20382	S35 E71	41	(BY)	3	M	450	7	EKO
78	12	30	15740					20382	S35 E60	40	(B)	3	B	530	8	EKI
78	12	31	15740					20382	S35 E47	40	(B)	4	R	400	24	EKO
79	1	1	15740					20382	S35 E34		(B)	4				
79	1	2	15740	S35 E22	38	2800	2.5	20382	S35 E21	38	B	4	M	360	10	EKI
79	1	3	15740	S35 E10	37	3400	3.0		S35 E05				M	380	27	EKI
79	1	4	15740	S35 W03	38	3400	3.0	20382	S35 W03	36	(B)	4	M	380	21	EKI
79	1	5	15740	S35 W14	35	2600	3.0		S33 W18				B	330	17	EKO
79	1	6	15740	S35 W26	34	3000	3.0	20382	S35 W30	38	BP	4	R	290	20	CKO
79	1	8	15740	S33 W52	34	2600	2.5	20382	S34 W56	38	AP	4	M	160	5	EAO
79	1	9	15740	S34 W65	32	3000	3.0	20382	S35 W75	40	B	4	B	80	4	DAO
79	1	10	15740	S35 W77	32	2700	3.0	20382	S35 W82	38	B	3	B	20	1	HRX
79	1	11	15740	S35 W88	32	800	1.5									

HCMATH REGION 15746 CMP DATE 4.9 RETURN OF REGION 15694 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15746	S22 E30	30	1800	3.0									
79	1	3	15746	S21 E17	30	2100	2.5									
79	1	4	15746	S21 E04	31	2400	2.5									
79	1	5	15746	S21 W08	29	2000	2.0									
79	1	6	15746	S20 W21	29	2200	2.5									
79	1	8	15746	S20 W51	33	2400	2.0		S19 W47				M	60	1	HSX
79	1	9	15746	S20 W65	32	2100	2.0		S20 W70				B	60	1	HSX
79	1	10	15746	S20 W78	33	1000	2.5									

HCMATH REGION 15745 CMP DATE 5.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	12	30	15745					20383	N14 E70	30	(AP)	3	B	100	1	HHX
78	12	31	15745					20383	N13 E60	27	(AP)	3	R	100	9	CSO
79	1	1	15745					20383	N13 E44		BP	4				
79	1	2	15745	N14 E32	28	1900	3.0	20383	N13 E31	28	BP	4	M	140	9	DSO
79	1	3	15745	N15 E20	27	1800	3.0		N13 E14				M	150	6	CSO
79	1	4	15745	N14 E06	29	2200	2.5	20383	N13 E03	30	(AP)	4	M	180	7	CSO
79	1	5	15745	N14 W05	26	2200	2.5		N12 W10				B	170	3	CHO
79	1	6	15745	N14 W18	26	2000	2.5	20383	N13 W23	31	(AP)	5	R	110	1	HSX
79	1	8	15745	N15 W46	28	1800	2.5	20383	N12 W49	31	(AP)	4	M	180	1	HSX
79	1	9	15745	N15 W60	27	1500	2.5	20383	N13 W67	32	(AP)	3	B	120	1	HSX
79	1	10	15745	N15 W73	28	1100	1.5	20383	N13 W75	31	AP	4	B	60	1	AHX
79	1	11	15745	N16 W75	19	200	1.0									

HCMATH REGION 15758 CMP DATE 7.1

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15758	N07 W21	3	200	2.0									
79	1	9	15758	N07 W36	3	100	1.0									

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MCMATH REGION 15766 CMP DATE 7.4

				CALCIUM				PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	10	15766	N23	W44	359	100	1.0										
79	1	11	15766	N23	W58	2	600	3.0	20401	N23	W54	357	(BP)	2	B	40	3	CRO
79	1	12	15766	N24	W70	359	600	2.0										

MCMATH REGION 15747 CMP DATE 7.7 RETURN OF REGION 15696 ROTATION 2

				CALCIUM				PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15747	S25	E63	358	1200	1.5										
79	1	3	15747	S25	E58	350	1500	2.0										
79	1	4	15747	S24	E44	352	1400	2.0										
79	1	5	15747	S24	E33	349	1200	1.5										
79	1	6	15747	S25	E16	353	1200	1.5										
79	1	8	15747	S25	W13	355	1200	1.0										
79	1	9	15747	S25	W23	350	800	1.0										
79	1	10	15747	S25	W36	351	800	1.0										
79	1	11	15747	S25	W50	354	700	1.0										
79	1	12	15747	S25	W61	350	600	1.0										

MCMATH REGION 15749 CMP DATE 8.3 RETURN OF REGION 15715 ROTATION 2

				CALCIUM				PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15749	N13	E77	344	700	2.0										
79	1	3	15749	N12	E62	346	800	3.0										
79	1	4	15749	N12	E48	348	800	3.0										
79	1	5	15749	N12	E35	347	800	3.0		N09	E35				B	20	3	CSO
79	1	6	15749	N11	E22	347	1000	3.0	20390	N08	E23	346	B	3	R	50	10	CRO
79	1	8	15749	N11	W05	347	1900	3.0	20390	N10	W04	346	(B)	4	H	230	30	DAI
79	1	9	15749	N10	W20	347	2200	3.0	20390	N10	W23	348	(B)	5				
79	1	10	15749	N10	W32	347	3400	3.0	20390	N10	W32	348	(B)	4	B	850	9	EKI
79	1	11	15749	N10	W46	350	3600	3.0	20390	N10	W46	349	(B)	4	B	750	17	EKI
79	1	12	15749	N10	W58	347	3500	3.0	20390	N10	W60	347	(B)	4	B	430	7	FSO
79	1	13	15749						20390	N10	W70	346	(B)	4	B	160	4	CSI
79	1	14	15749	N10	W83	347	2700	2.5		N10	W78				H	930	4	EKI

MCMATH REGION 15748 CMP DATE 8.9 RETURN OF REGION 15697 ROTATION 3

				CALCIUM				PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15748	S17	E80	341	1100	1.5										
79	1	3	15748	S17	E73	335	4200	3.0		S16	E72				H	240	6	DAO
79	1	4	15748	S16	E59	337	4800	3.0	20387	S17	E63	331	BF	4	H	270	12	DSO
79	1	5	15748	S16	E46	336	4200	3.0		S17	E49				B	340	7	DAI
79	1	6	15748	S16	E33	336	4200	3.5	20387	S17	E38	331	BF	5	R	290	16	DHO
79	1	8	15748	S17	E03	339	4400	3.0	20387	S17	E13	329	BF	5				
79	1	9	15748	S17	W10	337	4200	3.0	20387	S18	W05	330	(BF)	5	B	250	8	DHO
79	1	10	15748	S17	W22	337	4200	2.5	20387	S18	W14	330	(Y)	5	B	260	7	DHI
79	1	11	15748	S17	W34	338	4500	3.0	20387	S17	W28	331	Y	5	B	310	11	DKI
79	1	12	15748	S17	W46	335	4200	3.0	20387	S18	W43	330	(Y)	4	B	310	12	DKI
79	1	13	15748						20387	S17	W52	328	(Y)	4	B	290	12	DSI
79	1	14	15748	S17	W70	334	4100	3.0		S17	W59				H	680	12	EKC
79	1	15	15748	S17	W82	332	3000	3.0		S17	W79				B	560	8	EAI
79	1	16	15748	S16	W90	327	800	2.0										

MCMATH REGION 15750 CMP DATE 8.9 RETURN OF REGION 15700 ROTATION 3

				CALCIUM				PLAGE	DATA		SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	2	15750	N25	E82	339	1000	3.0		N23	E80				H	280	6	DAO
79	1	3	15750	N25	E77	331	4000	2.5		N23	E68				H	210	7	DAO
79	1	4	15750	N24	E55	341	1000	2.5	20386	N25	E52	342	B	4	H	170	10	DAO
79	1	5	15750	N24	E44	338	3600	2.5		N23	E37				B	140	3	DAI
79	1	6	15750	N24	E31	338	3300	2.5	20386	N25	E26	343	B	3	R	120	12	DRO
79	1	8	15750	N24	E03	339	3200	2.5	20386	N25	W01	343	B	3	H	100	13	DSO
79	1	9	15750	N24	W10	337	3600	2.5	20386	N25	W19	344	(AP)	3	B	10	2	BXO
79	1	10	15750	N24	W22	337	3600	2.0	20386	N25	W27	343	(B)	2				
79	1	11	15750	N24	W35	339	3600	2.5		N24	W43				B	30	1	HSX
79	1	12	15750	N24	W47	336	3200	2.5										
79	1	14	15750	N24	W68	332	2500	2.0										

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MCMATH REGION 15750 (CONT) CMP DATE 8.9 RETURN OF REGION 15700 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15750	N24 W78	328	600	1.0									

MCMATH REGION 15753 CMP DATE 10.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	4	15753	N17 E78	318	300	2.0		N17 E87				M	280	1	HSX
79	1	5	15753	N18 E67	315	500	2.0		N17 E77				B	140	2	CSO
79	1	6	15753	N18 E50	319	400	2.0									
79	1	8	15753	N18 E25	317	700	2.0									
79	1	9	15753	N18 E10	317	700	2.5									
79	1	10	15753	N18 W02	317	400	2.0									
79	1	11	15753	N18 W16	320	400	2.0									
79	1	12	15753	N18 W28	317	300	1.5									
79	1	14	15753	N18 W54	318	300	2.5									
79	1	15	15753	N18 W66	316	300	1.5		N16 W54				B	100	4	CSO

MCMATH REGION 15764 CMP DATE 10.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	10	15764	S27 W01	316	200	1.5	20399	S27 W01	317	B	2				
79	1	11	15764	S26 W13	317	200	1.5									
79	1	12	15764	S26 W26	315	100	1.0									

MCMATH REGION 15754 CMP DATE 12.2 RETURN OF REGIONS 15704 AND 15717 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	5	15754	N19 E86	296	1200	3.0									
79	1	6	15754	N18 E70	299	3100	3.0	20391	N17 E68	301	AP	4	R	290	9	EHO
79	1	8	15754	N19 E44	298	5000	3.0	20391	N17 E36	306	(AP)	5	M	210	26	ESO
79	1		15754					20393	N18 E51	291	B	4	M	260	13	ESO
79	1	9	15754	N19 E32	295	4700	3.0	20391	N17 E23	302	(BP)	5	B	220	14	ESI
79	1		15754					20393	N17 E40	285	(B)	4	B	120	9	DSO
79	1	10	15754	N19 E20	295	4900	3.5	20391	N17 E14	302	(BP)	4	B	100	10	ESI
79	1		15754					20393	N16 E27	289	(B)	3	B	160	4	EAO
79	1	11	15754	N19 E08	296	5500	3.5	20391	N18 W01	304	(BP)	4	B	170	14	ESO
79	1		15754					20393	N17 E14	289	(B)	3	B	260	24	EKI
79	1		15754					20402	N17 E18	285	(D)	3				
79	1	12	15754	N19 W05	294	5500	3.0	20391	N17 W20	307	(AP)	3	B	100	1	HSX
79	1		15754					20393	N15 W05	292	BP	3				
79	1		15754					20402	N16 E03	284	(AP)	3	B	340	20	EKO
79	1	13	15754					20391	N17 W31	307	(AP)	4	B	130	1	HSX
79	1		15754					20393	N14 W17	293	(AP)	4				
79	1		15754					20402	N16 W09	285	(Y)	4	B	240	23	EAC
79	1	14	15754	N18 W30	294	5500	3.5		N17 W33				M	90	5	CSO
79	1	15	15754	N18 W42	292	5300	3.5		N15 W37				B	420	22	EKI
79	1	16	15754	N18 W55	292	5500	3.5		N14 W49				B	350	9	EKI
79	1	17	15754	N18 W69	290	5000	3.0		N15 W65				B	340	10	EAI
79	1	18	15754	N18 W80	290	3800	3.5	20402	N16 W75	285	B	3				

MCMATH REGION 15756 CMP DATE 13.0

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15756	S09 E87	282	900	2.0		S10 E84				R	10	1	AXX
79	1	8	15756	S11 E58	284	1000	3.0	20392	S08 E53	289	AP	3	M	10	2	AXX
79	1	9	15756	S10 E42	285	900	3.0									
79	1	10	15756	S10 E30	285	1300	3.0									
79	1	11	15756	S10 E16	288	1300	3.0		S12 E19				B	10	3	BXO
79	1	12	15756	S10 E04	285	1300	2.5									
79	1	14	15756	S10 W22	286	1500	2.0									
79	1	15	15756	S10 W35	285	1200	2.0									
79	1	16	15756	S10 W48	285	1200	2.0									
79	1	17	15756	S10 W62	283	1200	2.0									
79	1	18	15756	S11 W74	284	1200	1.5									

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MCMATH REGION 15773 CMP DATE 13.5

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15773	N12 W28	278	200	2.5		N10 W27				B	30	3	CSO
79	1	16	15773	N12 W41	278	500	2.5		N10 W40				B	20	3	CRO
79	1	17	15773	N12 W56	277	500	2.5		N10 W54				B	20	3	CRO
79	1	18	15773	N12 W68	278	500	2.0									

MCMATH REGION 15757 CMP DATE 13.6 RETURN OF REGION 15707 ROTATION 2

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	6	15757	S21 E85	284	300	1.0									
79	1	8	15757	S25 E70	272	2000	3.5									
79	1	9	15757	S26 E52	275	2000	3.0	20395	S23 E42	283	B	2				
79	1	10	15757	S25 E38	277	1700	3.0	20395	S23 E34	282	(AP)	2	B	10	2	BXC
79	1	11	15757	S25 E25	279	2100	3.0	20395	S24 E26	277	B	3	B	30	3	CSO
79	1	12	15757	S23 E12	277	2100	2.5	20395	S27 E12	275	B	3				
79	1	13	15757					20395	S27 W01	277	(Y)	3	B	50	9	CRI
79	1	14	15757	S24 W12	276	2700	2.5		S23 W08				M	60	13	DSO
79	1	15	15757	S24 W25	275	2500	2.5		S24 W28				B	260	16	DAI
79	1	16	15757	S26 W39	276	2700	3.0		S26 W41				B	110	9	EAO
79	1	17	15757	S26 W52	273	2500	2.5		S26 W55				B	220	7	EKO
79	1	18	15757	S26 W63	273	2700	2.5	20395	S22 W78	288	AP	4	B	10	1	AXX
79	1		15757					20405	S25 W64	274	AP	3	B	10	2	BXO

MCMATH REGION 15769 CMP DATE 14.1

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15769	N16 W06	270	400	2.5		N15 E01				M	30	3	CRO
79	1	15	15769	N15 W20	270	500	2.0		N14 W19				B	40	3	DSO
79	1	16	15769	N15 W34	271	400	1.0		N13 W36				B	0	1	AXX
79	1	17	15769	N15 W49	270	200	1.0		N13 W50				B	10	1	AXX
79	1	18	15769	N14 W60	270	100	1.0		N15 W65				M	30	2	BXO

MCMATH REGION 15759 CMP DATE 14.6

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15759	N28 E80	262	500	2.5									
79	1	9	15759	N28 E63	264	800	3.0	20396	N28 E60	265	(B)	3	B	10	3	BXO
79	1	10	15759	N28 E50	265	1000	3.0	20396	N27 E51	265	(B)	3	B	30	3	BXI
79	1	11	15759	N28 E36	268	1300	3.0	20396	N27 E37	266	(B)	2	B	60	2	DSO
79	1	12	15759	N28 E24	265	900	2.0	20396	N27 E22	265	B	2	B	10	2	BXO
79	1	13	15759					20396	N27 E09	267	(AP)	2	B	10	1	AXX
79	1	14	15759	N28 E00	264	800	2.5		N27 E04				M	10	2	BXO
79	1	15	15759	N28 W13	263	600	2.0									
79	1	16	15759	N28 W27	264	500	2.5									
79	1	17	15759	N28 W42	263	400	2.0									
79	1	18	15759	N28 W54	264	400	1.5									

MCMATH REGION 15760 CMP DATE 14.8

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15760	N21 E85	257	300	1.0		N18 E70				M	160	6	CRO
79	1	9	15760	N21 E67	260	200	1.5									
79	1	10	15760	N21 E54	261	100	1.5									
79	1	11	15760	N21 E40	264	300	2.5									
79	1	12	15760	N21 E28	261	100	1.0									

MCMATH REGION 15763 CMP DATE 15.0 RETURN OF PART OF REGION 15709 ROTATION 4

				CALCIUM	PLAGE	DATA			SUNSPOT	DATA					
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15763	S25 E80	262	1000	1.5	20394	S27 E80	262	AP	4				
79	1	9	15763	S26 E66	261	800	2.0	20394	S27 E65	260	(AP)	3	B	50	1	HSX
79	1	10	15763	S26 E55	260	900	2.0	20394	S27 E55	261	(AP)	3	B	80	1	HAX
79	1	11	15763	S25 E41	263	1000	2.0	20394	S27 E41	262	AP	3	B	50	2	DSO

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MCMATH REGION 15763 (CONT) CMP DATE 15.0 RETURN OF PART OF REGION 15709 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15763	S25 E29	260	1000	1.5	20394	S27 E28	259	AP	2	B	10	2	AXX
79	1	13	15763					20394	S27 E17	259	(AP)	2	B	10	1	AXX
79	1	14	15763	S25 E05	259	700	1.5		S26 W03				M	20	3	BXO
79	1	15	15763	S27 W07	257	600	1.5									
79	1	16	15763	S27 W21	258	400	1.5									
79	1	17	15763	S27 W35	256	500	1.5									

MCMATH REGION 15761 CMP DATE 15.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	8	15761	S16 E85	257	600	1.0									
79	1	9	15761	S15 E76	251	1400	2.0	20397	S12 E75	250	AP	2				
79	1	10	15761	S15 E63	252	1100	2.5	20397	S13 E67	249	AP	2				
79	1	11	15761	S15 E50	254	1200	2.5									
79	1	12	15761	S15 E36	253	1400	2.5									
79	1	14	15761	S14 E10	254	1000	2.5									
79	1	15	15761	S16 W04	254	700	2.0		S13 W09				B	20	3	CSO
79	1	16	15761	S15 W20	257	600	2.0									
79	1	17	15761	S15 W36	257	400	2.0									
79	1	18	15761	S15 W47	257	400	2.0									

MCMATH REGION 15762 CMP DATE 16.2 RETURN OF REGION 15714 AND PART OF REGION 15709 ROTATIONS 2 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	9	15762	S24 E82	245	1700	2.0	20398	S23 E80	245	AP	3				
79	1	10	15762	S24 E73	242	3000	3.0	20398	S20 E61	255	AP	2				
79	1		15762					20400	S23 E69	247	AP	3	B	0	2	BXI
79	1	11	15762	S23 E59	245	3500	3.0	20400	S24 E55	248	B	2	B	70	3	DSO
79	1	12	15762	S24 E47	242	3700	3.0	20400	S22 E35	252	(B)	3	B	70	4	CRI
79	1	13	15762					20400	S22 E24	252	(B)	3	B	100	14	BXC
79	1	14	15762	S24 E20	244	3700	3.0		S24 E22				M	110	20	DSI
79	1	15	15762	S24 E07	243	3500	2.5									
79	1	16	15762	S24 W08	245	3600	3.0		S23 W16				B	470	20	EKI
79	1	17	15762	S23 W24	245	3200	3.0		S24 W29				B	410	18	EKI
79	1	18	15762	S23 W35	245	3600	3.0	20400	S22 W43	253	BP	4				
79	1	19	15762					20400	S22 W56	253	B	4				
79	1	20	15762					20400	S22 W70	254	BP	4				
79	1	22	15762	S23 W87	244	1400	1.0									

MCMATH REGION 15765 CMP DATE 16.8

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	10	15765	N17 E80	235	200	1.5									
79	1	11	15765	N17 E66	238	500	1.0	20403	N16 E61	242	(AP)	2				
79	1	12	15765	N17 E55	234	200	1.0									

MCMATH REGION 15780 CMP DATE 16.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15780	N13 W75	232	300	2.0									

MCMATH REGION 15776 CMP DATE 17.4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	16	15776	N21 E13	227	300	2.5		N19 E08				B	30	2	CSO
79	1	17	15776	N20 W06	227	400	1.5		N20 W03				B	20	2	BXX
79	1	18	15776	N20 W17	227	400	1.5	20406	N20 W19	229	B	2	M	20	2	CRO
79	1	22	15776	N20 W69	226	400	2.0									

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HCMATH REGION 15768 — CMP DATE 18.3 — RETURN OF REGION 15712 — ROTATION 5

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15768	N10 E78	211	700	1.5	20404	N10 E73	214	(AP)	3				
79	1	13	15768					20404	N10 E61	215	(AP)	4	B	90	1	HSX
79	1	14	15768	N10 E50	214	1000	3.0		N10 E58				M	140	3	CSO
79	1	15	15768	N12 E36	214	1100	2.5		N09 E35				B	120	4	DSO
79	1	16	15768	N12 E22	215	1200	2.0		N09 E20				B	150	3	CSO
79	1	17	15768	N12 E07	214	1200	2.0		N10 E08				B	170	3	DHO
79	1	18	15768	N11 W05	215	1200	2.5	20404	N10 W07	217	BF	4	B	100	5	DSO
79	1	19	15768					20404	N10 W19	216	(B)	3	B	90	4	DSO
79	1	20	15768					20404	N10 W33	217	(BF)	4				
79	1	22	15768	N10 W58	215	800	2.5	20404	N10 W56	213	(AP)	4	B	90	1	HSX
79	1	23	15768	N11 W72	216	800	1.5	20404	N11 W70	214	(AP)	3	B	80	1	HSX

HCMATH REGION 15767 — CMP DATE 18.5

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	12	15767	S25 E77	212	1500	1.5									
79	1	14	15767	S25 E53	211	1900	1.5									
79	1	15	15767	S25 E40	210	1200	2.0									
79	1	16	15767	S25 E26	211	1500	2.0									
79	1	17	15767	S25 E10	211	1300	1.5									
79	1	18	15767	S25 W01	211	1400	2.5	20407	S22 W01	211	B	3	B	100	6	DSO
79	1	19	15767					20407	S23 W14	211	(B)	3	B	90	12	DAI
79	1	20	15767					20407	S23 W27	211	(BF)	4				
79	1	22	15767	S24 W53	210	2100	3.0	20407	S23 W54	211	(B)	4	B	170	6	DSO
79	1	23	15767	S24 W65	209	2100	3.0	20407	S23 W66	210	(B)	3	B	40	2	CSO

HCMATH REGION 15771 — CMP DATE 18.7

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15771	N22 E54	210	400	1.5									
79	1	15	15771	N22 E41	209	300	1.5									
79	1	16	15771	N22 E27	210	300	1.5									
79	1	17	15771	N22 E12	209	300	1.5									
79	1	18	15771	N22 E00	210	200	1.5									
79	1	22	15771	N22 W51	208	100	1.0									

HCMATH REGION 15789 A — CMP DATE 19.9

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	23	15789	N30 W49	193	100	1.0									

HCMATH REGION 15770 — CMP DATE 20.0 — RETURN OF REGION 15721 — ROTATION 4

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15770	S16 E70	194	400	2.0									
79	1	15	15770	S16 E58	192	500	2.0		S17 E55				B	20	2	BXO
79	1	16	15770	S16 E45	192	500	1.5									
79	1	17	15770	S16 E29	192	300	1.0									

HCMATH REGION 15783 — CMP DATE 21.2

CALCIUM PLAGE DATA								SUNSPOT DATA								
YR	MO	DA	HC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	20	15783					20414	S36 E06	178	(B)	2				
79	1	22	15783	S33 W19	176	800	2.0	20414	S34 W20	177	(B)	3	B	30	3	CSO
79	1	23	15783	S33 W31	175	800	2.5	20414	S34 W34	178	(BF)	3	B	30	5	DSO
79	1	25	15783					20414	S34 W55	172	(AP)	2	P	70	8	DSO
79	1	26	15783	S33 W70	174	800	3.0		S34 W63				M	60	4	CRO
79	1	27	15783	S33 W80	171	800	2.5									

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MCMATH REGION 15772 CMP DATE 21.3 RETURN OF REGIONS 15722 AND 15723 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	14	15772	N18 E84	180	700	1.5										
79	1	15	15772	N20 E72	178	2000	3.0			N19 E75				B	70	4	DSI
79	1	16	15772	N20 E60	177	2900	3.0			N19 E64				B	210	3	CKO
79	1	17	15772	N20 E45	176	3100	3.0			N19 E50				B	300	6	CAO
79	1	18	15772	N20 E35	175	3100	3.0		20408	N19 E36	174	BP	4	B	240	9	DSO
79	1	19	15772						20408	N19 E25	172	(Y)	3	B	280	20	ESI
79	1	20	15772						20408	N19 E16	168	(B)	4				
79	1		15772						20413	N18 E08	176	(Y)	4				
79	1	22	15772	N19 W18	175	4000	3.5		20408	N19 W09	166	(D)	4	B	440	14	EKI
79	1		15772						20413	N18 W18	175	(Y)	4				
79	1	23	15772	N19 W31	175	4000	3.0		20408	N20 W23	167	(BF)	4				
79	1		15772						20413	N18 W31	175	(Y)	4	B	410	14	ESI
79	1	25	15772						20408	N22 W49	166	(AF)	3				
79	1		15772						20413	N18 W60	177	(AP)	3	P	340	13	EAO
79	1	26	15772	N19 W70	174	3200	3.0		20408	N22 W61	166	(AF)	3	M	300	7	EAO
79	1		15772						20413	N19 W75	180	(AP)	2				
79	1	27	15772	N19 W83	174	2500	2.5		20408	N21 W75	166	AF	3	B	0	1	HSX

MCMATH REGION 15781 CMP DATE 21.6

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15781	N09 W13	170	100	1.5		20419	N08 W14	171	(AP)	2	B	10	1	AXX
79	1	23	15781	N09 W26	170	100	1.5		20419	N08 W25	169	(AF)	2	B	10	1	AXX
79	1	25	15781						20419	N07 W50	167	(B)	2	P	50	5	DAO
79	1	26	15781	N09 W67	171	600	2.5		20419	N08 W61	166	(AF)	2				
79	1	27	15781	N08 W81	172	400	1.5										

MCMATH REGION 15774 CMP DATE 21.9 RETURN OF REGION 15737 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	15	15774	S13 E82	168	900	2.0			S14 E79				B	60	2	CSO
79	1	16	15774	S14 E68	169	1400	3.0			S14 E66				B	90	2	CSO
79	1	17	15774	S15 E53	168	1100	3.0			S13 E53				B	170	6	CHO
79	1	18	15774	S14 E41	169	1500	3.5		20409	S15 E40	170	BP	5	B	180	12	DSI
79	1	19	15774						20409	S14 E29	168	(B)	3	B	290	17	DKO
79	1	20	15774						20409	S14 E15	169	(BP)	4	B	200	10	DAO
79	1	22	15774	S15 W10	167	1600	3.0		20409	S15 W13	170	(BP)	3	B	120	5	DSO
79	1	23	15774	S15 W23	167	1500	3.0		20409	S14 W27	171	(AP)	4	B	70	5	CSO
79	1	25	15774						20409	S14 W54	171	(AP)	2	P	70	1	HAX
79	1	26	15774	S15 W65	169	1200	2.0		20409	S14 W68	173	(AP)	3	M	70	1	HSX
79	1	27	15774	S16 W79	170	700	2.0		20409	S14 W80	171	(AP)	2	B	10	1	HSX

MCMATH REGION 15775 CMP DATE 22.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	16	15775	S18 E85	152	500	1.0										
79	1	17	15775	S18 E68	153	500	2.5										
79	1	18	15775	S18 E56	154	500	2.5		20411	S18 E53	157	AP	2	B	250	1	HSX
79	1	19	15775						20411	S18 E38	159	AP	2	B	20	1	HRX
79	1	20	15775						20411	S17 E24	160	(AP)	2				
79	1	22	15775	S18 E03	154	400	2.0										
79	1	23	15775	S18 W11	155	400	2.0										
79	1	26	15775	S18 W53	157	400	1.5										

MCMATH REGION 15782 CMP DATE 22.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT		MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15782	N07 E03	154	300	2.5		20420	N06 E02	155	(AP)	2	B	10	1	AXX
79	1	23	15782	N08 W10	154	200	1.5		20420	N07 W13	157	(AP)	2	B	10	2	AXX
79	1	26	15782	N09 W52	156	400	2.0			N07 W54				M	50	4	DRO
79	1	27	15782	N08 W66	157	400	2.0										

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MCMATH REGION 15784 CMP DATE 23.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	22	15784	S29 E07	150	100	1.0									
79	1	23	15784	S29 W05	149	100	1.0									
79	1	25	15784					20425	S28 W33	150	(B)	2	P	100	8	DSO
79	1	26	15784	S29 W47	151	300	3.5	20425	S28 W49	144	(AP)	2	H	60	4	DRO
79	1	27	15784	S30 W60	151	300	2.0	20425	S28 W62	153	(AP)	2				

MCMATH REGION 15778 CMP DATE 23.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	17	15778	S11 E80	141	1200	3.0		S09 E80				B	140	1	HSX
79	1	18	15778	S11 E68	142	2700	2.5	20410	S11 E63	147	AP	5				
79	1	19	15778					20410	S11 E49	148	(AP)	4	B	150	5	CSO
79	1	20	15778					20410	S12 E37	147	(BP)	4				
79	1		15778					20416	S13 E48	136	(AF)	2				
79	1	22	15778	S12 E15	142	2400	3.0	20410	S12 E12	145	(Y)	4	B	100	8	DSO
79	1	23	15778	S12 E01	143	2100	3.0	20410	S11 E00	144	(B)	4	B	110	10	DAI
79	1	25	15778					20410	S12 W27	144	(B)	3	P	100	14	DSO
79	1	26	15778	S12 W38	142	1800	3.0	20410	S12 W40	145	(B)	3	H	110	5	DSO
79	1	27	15778	S13 W52	143	2100	3.0	20410	S12 W58	149	(AP)	4	B	10	2	HSX
79	1	28	15778					20410	S12 W72	150	AP	2	B	390	20	DKI

MCMATH REGION 15779 CMP DATE 23.9

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	18	15779	S25 E70	140	300	2.0		S28 E63				B	0	1	AXX
79	1	20	15779					20415	S27 E41	143	(B)	3	B	40	3	CSO
79	1	22	15779	S25 E17	140	700	2.5	20415	S26 E14	143	(B)	3	B	110	6	CAO
79	1	23	15779	S25 E04	140	800	3.0	20415	S26 E02	142	(B)	3	B	110	8	DAO
79	1	25	15779					20415	S25 W25	142	(B)	3				
79	1	26	15779	S25 W35	139	1000	3.5	20415	S25 W37	142	(Y)	3	H	90	4	DRO
79	1	27	15779	S26 W49	140	1800	3.0	20415	S26 W47	138	(D)	3	B	560	8	DKI
79	1	28	15779					20415	S27 W62	140	Y	4				
79	1	29	15779					20415	S26 W72	137	(D)	2	R	320	6	DKI
79	1	30	15779	S26 W89	141	1800	3.0		S25 W86				B	40	1	HSX

MCMATH REGION 15777 CMP DATE 24.5 RETURN OF REGION 15726 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	17	15777	N13 E85	136	800	2.0									
79	1	18	15777	N14 E77	133	3000	3.5		N08 E79				B	0	1	AXX
79	1	19	15777					20412	N12 E62	135	AP	2	B	100	2	DSO
79	1	20	15777					20412	N13 E50	134	(B)	4				
79	1		15777					20417	N09 E53	131	(BP)	3				
79	1	22	15777	N14 E24	133	5100	3.5	20412	N13 E23	134	(BP)	4	B	260	15	EHI
79	1		15777					20417	N09 E25	132	(B)	2	B	50	9	CRO
79	1		15777					20421	N18 E23	134	(AP)	3				
79	1	23	15777	N15 E11	133	5400	3.0	20412	N12 E08	136	(BP)	4	B	400	16	EHI
79	1		15777					20417	N10 E11	133	(B)	3	B	20	6	BXO
79	1		15777					20421	N18 E08	136	AP	2				
79	1	25	15777					20412	N14 W19	136	(BP)	4	P	350	39	EKI
79	1	26	15777	N15 W30	134	5200	3.0	20412	N14 W33	138	(BP)	4				
79	1		15777					20427	N09 W29	134	(B)	2	H	330	14	EKI
79	1	27	15777	N15 W44	135	5300	3.0	20412	N15 W45	136	(Y)	4	B	760	9	EHO
79	1		15777					20427	N09 W43	134	(B)	3	B	150	5	DSI
79	1		15777					20428	N17 W42	133	(B)	3				
79	1	28	15777					20412	N15 W60	138	Y	4	B	390	4	CHO
79	1		15777					20427	N09 W58	136	B	3	B	760	17	DKI
79	1		15777					20428	N18 W55	133	B	2	B	250	10	DAI
79	1	29	15777					20412	N13 W78	143	(AP)	3				
79	1		15777					20427	N09 W72	137	(BP)	2	R	80	7	DRO
79	1		15777					20428	N17 W70	135	(B)	2	R	280	4	EKO
79	1	30	15777	N14 W84	136	4000	2.5									

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MCMATH REGION 15787 CMP DATE 26.1 RETURN OF REGION 15751 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	20	15787				
79	1	22	15787	N20 E45	112	3700	3.5
79	1	23	15787	N22 E32	112	3400	3.0
79	1	25	15787				
79	1		15787				
79	1	26	15787	N20 W08	112	3200	3.5
79	1	27	15787	N20 W21	112	3000	3.5
79	1	28	15787				
79	1	29	15787				
79	1	30	15787	N20 W60	112	3700	3.5
79	1	31	15787	N20 W74	112	3400	3.0
79	2	01	15787	N21 W87		1300	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20418	N19 E70	114	(AP)	3				
20418	N19 E41	116	(BP)	4	B	130	8	EAO
20418	N19 E30	114	(BP)	4	B	220	9	CHO
20418	N20 E04	113	(BP)	4	P	180	19	DSO
20426	N25 E35	82	(AP)	2	P	20	4	CRO
20418	N21 W08	113	(B)	3	M	190	17	DAO
20418	N20 W19	110	(B)	3	B	120	8	DAI
20418	N20 W36	114	B	3	B	130	15	DAI
20418	N20 W47	112	(B)	3	R	90	11	DAO
	N21 W62				B	140	3	CAO

MCMATH REGION 15785 CMP DATE 26.7 POSSIBLY RETURN OF PART OF REGION 15733 OR NEW ROTATIONS 1 OR 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15785	S14 E56	101	2800	3.5
79	1	23	15785	S14 E43	101	3000	3.0
79	1	25	15785				
79	1	26	15785	S14 W01	105	3200	3.0
79	1	27	15785	S14 W13	104	3000	3.0
79	1	28	15785				
79	1	29	15785				
79	1	30	15785	S15 W52	104	3000	3.5
79	1	31	15785	S15 W65	103	2700	3.0
79	2	01	15785	S15 W77		2300	2.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20422	S14 E55	102	(AP)	2	B	30	4	BXO
20422	S14 E36	108	(Y)	3	B	30	5	CSO
20422	S13 E09	108	(Y)	4	P	220	33	DAI
20422	S13 W03	108	(B)	3	M	180	21	DAI
20422	S14 W15	106	(BP)	4	B	160	12	DAI
20422	S14 W29	107	BP	3	B	140	22	DAI
20422	S14 W42	107	(BP)	2	R	100	30	DSO
	S14 W55				B	110	8	DSO
	S12 W70				R	50	3	CAO

MCMATH REGION 15786 CMP DATE 27.7 (PROBABLY NEW)

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15786	S25 E68	89	3200	3.5
79	1	23	15786	S25 E54	90	3800	3.5
79	1	25	15786				
79	1	26	15786	S25 E12	92	4100	3.5
79	1	27	15786	S27 E00	91	3800	3.0
79	1	28	15786				
79	1	29	15786				
79	1	30	15786	S26 W38	90	3700	3.5
79	1	31	15786	S26 W50	88	3500	3.0
79	2	01	15786	S26 W63		2700	3.0
79	2	02	15786	S27 W76		2800	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20423	S25 E61	96	(BP)	4	B	220	2	CHO
20423	S25 E47	97	(AP)	4	B	280	4	CHO
20423	S25 E24	93	(AP)	5	P	330	34	EKO
20423	S25 E11	94	(AP)	4	M	330	23	EHI
20423	S26 E03	88	(BP)	4				
20423	S26 W13	91	BP	4	B	130	12	EHO
20423	S26 W25	90	(BP)	3	R	220	14	EHO
	S26 W37				B	280	8	EHI
	S25 W50				R	200	10	ESO
	S27 W62				B	138	2	C
	S25 W81				B	80	1	H

MCMATH REGION 15789 B CMP DATE 28.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	26	15789	N25 E22	82	300	2.0
79	1	27	15789	N25 E13	81	200	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	N23 E32			H	10	1	AXX	
	N26 E00			B	210	7	EKO	

MCMATH REGION 15809 CMP DATE 28.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	2	02	15809	N14 W68		100	1.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15788 CMP DATE 29.0 RETURN OF PART OF REGION 15733 ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
79	1	22	15788	S21 E68	69	2800	2.0
79	1	23	15788	S23 E73	71	2900	2.0
79	1	25	15788				
79	1	26	15788	S23 E30	74	2700	2.5
79	1	27	15788	S23 E18	73	2800	2.0
79	1	28	15788				

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20424	S22 E78	79	(AP)	3	B	60	1	HSX
20424	S22 E64	80	(AP)	3	B	190	1	HAX
20424	S23 E38	79	(AP)	4	P	210	5	DSO
20424	S23 E25	80	(AP)	4	M	140	3	CSO
20424	S23 E12	79	(AP)	4	B	120	1	HSX
20424	S23 E03	75	BP	4	B	140	4	CHO

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MCMATH REGION 15788 (CONT) CMP DATE 29.0 RETURN OF PART OF REGION 15733 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	29	15788					20424	S24 W13	78	(BP)	4	R	180	2	CSO
79	1	30	15788	S23 W22	74	2800	2.5		S23 W26				B	160	1	HHX
79	1	31	15788	S23 W35	73	2600	2.5		S23 W24				R	10	1	AXX
79	2	01	15788	S23 W47		2600	2.5		S24 W51				B	163	1	H
79	2	02	15788	S23 W61		2200	2.0		S23 W66				B	130	1	H
79	2	04	15788	S23 W90		500	1.0									

MCMATH REGION 15791 CMP DATE 30.3 RETURN OF REGION 15755 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	26	15791	N26 E49	55	400	1.5									
79	1	27	15791	N25 E35	56	400	1.5									
79	1	30	15791	N26 W04	56	400	1.0									
79	1	31	15791	N25 W19	57	300	1.0		N18 W09				R	20	3	BXO
79	2	01	15791	N25 W32		300	1.0									
79	2	02	15791	N25 W45		400	1.0									

MCMATH REGION 15790 CMP DATE 30.4 RETURN OF REGION 15739 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	26	15790	S35 E45	59	400	2.0		S30 E45				H	0	1	AXX
79	1	27	15790	S34 E35	56	600	1.5									
79	1	30	15790	S34 W03	55	500	1.5		S29 E07				B	10	1	AXX
79	1	31	15790	S34 W16	54	300	1.5									
79	2	01	15790	S34 W27		400	1.0									
79	2	02	15790	S34 W41		300	1.0									
79	2	04	15790	S34 W66		300	1.0									
79	2	05	15790	S34 W79		300	1.0									

MCMATH REGION 15792 CMP DATE 31.1 RETURN OF REGION 15741 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	26	15792	S15 E60	44	1500	2.5									
79	1	27	15792	S15 E46	45	1200	2.5									
79	1	28	15792					20429	S18 E42	36	AP	3	B	120	2	AXX
79	1	30	15792	S15 E06	46	800	2.0									
79	1	31	15792	S15 W08	46	800	2.0									
79	2	01	15792	S15 W19		900	1.5									
79	2	02	15792	S15 W32		700	1.0									
79	2	04	15792	S15 W58		600	1.0									
79	2	05	15792	S15 W71		500	1.0									

MCMATH REGION 15797 CMP DATE 31.9

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15797	N10 E19	33	100	1.0									
79	1	31	15797	N10 E03	35	100	1.0									
79	2	01	15797	N09 W09		100	1.0									
79	2	02	15797	N09 W22		100	1.0									
79	2	04	15797	N09 W49		200	1.0									
79	2	05	15797	N10 W62		200	1.5									

Note: No calcium spectroheliograms were secured at the McMath-Hulbert Observatory on Jan. 1, 7, 13, 19, 20, 21, 24, 25, 28 and 29, 1979.
No sunspot observations were made at Mt. Wilson on Jan. 3, 5, 7, 14, 15, 16, 17, 21, 24, 30 and 31, 1979.

ERRATA: The Regions of Solar Activity for January 1979 and February 1979 are being republished in this issue because a computer error omitted sunspot data from all stations reporting except Mt. Wilson. The error occurred for the January data after January 18 and for the February data after February 11.

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MCMATH REGION 15794 CMP DATE 1.0 RETURN OF PART OF REGION 15740 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15794	S33 E78	26	700	1.5								
79	1	27	15794	S32 E67	24	900	2.0								
79	1	30	15794	S32 E20	32	500	1.5								
79	1	31	15794	S32 E05	33	400	1.0								
79	2	1	15794	S32 W08	34	400	1.5								
79	2	2	15794	S32 W23	34	400	1.5								
79	2	4	15794	S32 W49	36	400	1.0								
79	2	5	15794	S31 W61	35	400	1.5								

MCMATH REGION 15793 CMP DATE 1.8 RETURN OF REGION 15745 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	26	15793	N18 E78	26	900	1.0								
79	1	27	15793	N19 E64	27	900	1.5								
79	1	30	15793	N20 E27	25	600	1.0								
79	1	31	15793	N20 E14	24	400	1.0								
79	2	1	15793	N20 E02	24	500	1.0								
79	2	2	15793	N20 W11	22	500	1.0								
79	2	4	15793	N21 W37	24	500	1.0								
79	2	5	15793	N22 W50	24	500	1.0								

MCMATH REGION 15814 CMP DATE 3.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	6	15814	S17 W50	9	100	1.0								
79	2	7	15814	S18 W64	11	100	1.0								
79	2	8	15814	S18 W76	11	300	2.0								

MCMATH REGION 15798 CMP DATE 3.1 RETURN OF PART OF REGION 15740 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	30	15798	S35 E42	10	800	1.5								
79	1	31	15798	S35 E30	8	700	2.0								
79	2	1	15798	S35 E18	8	500	2.0								
79	2	2	15798	S35 E05	6	500	1.0								
79	2	4	15798	S35 W27	14	500	1.0								
79	2	5	15798	S35 W40	14	500	1.0								

MCMATH REGION 15796 CMP DATE 3.5 RETURN OF REGION 15766 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	27	15796	N18 E87	4	500	1.0								
79	1	28	15796					20430	N19 E72	6	B	3			
79	1		15796					20431	N15 E70	8	AP	3			
79	1	29	15796					20430	N22 E65	0	(BP)	2			
79	1		15796					20431	N15 E56	9	(AP)	2			
79	1	30	15796	N20 E50	2	2400	3.5								
79	1	31	15796	N20 E40	359	2200	3.0								
79	2	1	15796	N20 E25	1	2600	3.5		N19 E27				B	90	5 DAO
79	2	2	15796	N20 E11	0	2400	3.0		N20 E09				B	70	3 DSO
79	2	3	15796						N20 W04				B	10	2 BXO
79	2	4	15796	N20 W15	2	2400	3.0		N20 W16				B	10	2 BXO
79	2	5	15796	N20 W29	3	2500	2.5	20433	N18 W32	6	(B)	3	B	20	3 BXO
79	2	6	15796	N20 W45	4	2200	2.5	20433	N17 W47	8	(B)	2	B	30	2 CRO
79	2	7	15796	N20 W57	4	2300	2.0		N15 W56				B	20	2 BXO
79	2	8	15796	N20 W68	3	1800	2.0		N15 W69				B	10	2 BXO

MCMATH REGION 15802 CMP DATE 3.9 RETURN OF REGION 15749 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	1	28	15802					20432	N08 E80	359	Y	4			
79	1	29	15802					20432	N08 E67	359	(Y)	3			

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MCMATH REGION 15802 (CONT) CMP DATE 3.9 RETURN OF REGION 15749 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15802	N13 E59	354	6300	3.5									
79	1	31	15802	N13 E43	356	6500	3.0									
79	2	1	15802	N12 E30	357	7000	3.5		N14 E33				B	10	1	AXX
79	2	2	15802	N12 E16	356	6600	3.5		N13 E14				B	10	3	BXO
79	2	3	15802						N07 W02				B	200	7	DSO
79	2	4	15802	N12 W10	357	6700	3.5		N08 W15				B	130	11	DAI
79	2	5	15802	N12 W24	358	6500	3.0	20432	N07 W28	2	(B)	3	B	160	3	DAO
79	2	6	15802	N12 W40	359	6200	3.0	20432	N07 W41	2	(B)	4	B	210	6	EAO
79	2		15802					20438	N12 W32	353	(B)	3	B	60	5	DAO
79	2	7	15802	N12 W50	357	6500	3.0	20432	N07 W55	2	B	4	B	180	5	EAO
79	2	8	15802	N12 W62	357	6500	3.0	20432	N07 W68	2	(B)	4	6	40	2	ESO
79	2		15802					20444	N13 W65	359	(AP)	2				
79	2	9	15802	N12 W77	358	3000	2.5	20432	N07 W78	359	AP	3				
79	2		15802					20444	N12 W85	6	AP	3	B	30	1	HSX

MCMATH REGION 15804 CMP DATE 5.1 RETURN OF PART OF REGION 15748 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15804	S14 E70	343	3000	3.0									
79	1	31	15804	S14 E60	339	3000	3.0									
79	2	1	15804	S14 E44	343	3500	3.5		S13 E47				B	340	11	DAI
79	2	2	15804	S14 E32	340	3300	3.5		S13 E33				B	480	27	DKI
79	2	3	15804						S14 E20				B	440	8	DHO
79	2	4	15804	S14 E05	342	4000	3.5		S13 E05				B	560	29	EKI
79	2	5	15804	S14 W07	341	4300	3.5	20434	S13 W07	341	(B)	4	B	590	24	EKI
79	2	6	15804	S14 W23	342	4000	3.0	20434	S13 W21	342	(BP)	4	B	530	36	EKI
79	2	7	15804	S14 W34	341	4300	3.5	20434	S13 W35	342	BP	4	B	370	28	EAI
79	2	8	15804	S14 W46	341	4500	3.5	20434	S13 W48	342	(BP)	3	B	110	13	ESI
79	2	9	15804	S14 W60	341	3800	3.5	20434	S14 W65	346	(AP)	3	B	60	5	DSO
79	2	10	15804	S14 W72	341	3400	3.0	20434	S14 W80	346	AP	3	B	10	1	HSX
79	2	11	15804	S15 W85	340	2100	2.0									

MCMATH REGION 15803 CMP DATE 5.5 RETURN OF REGION 15750 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15803	N25 E80	333	300	1.0									
79	1	31	15803	N25 E63	336	200	1.0									
79	2	1	15803	N25 E50	337	200	1.0									
79	2	2	15803	N25 E36	336	200	1.0									
79	2	4	15803	N26 E11	336	200	1.5									
79	2	5	15803	N26 W02	336	300	1.5									
79	2	6	15803	N26 W17	336	200	1.0									

MCMATH REGION 15799 CMP DATE 5.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15799	S34 E74	339	300	1.0									
79	1	31	15799	S34 E63	336	300	1.0									

MCMATH REGION 15800 CMP DATE 6.3 RETURN OF PART OF REGION 15748 ROTATION 4

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	1	30	15800	S20 E85	328	2500	3.0									
79	1	31	15800	S22 E70	329	3500	3.0									
79	2	1	15800	S19 E59	328	3500	3.0		S18 E63				B	40	2	HSX
79	2	2	15800	S19 E45	327	3500	3.0		S18 E48				B	30	1	HSX
79	2	3	15800						S18 E32				B	0	1	AXX
79	2	4	15800	S19 E21	326	3100	3.0		S21 E21				B	10	5	BXO
79	2	5	15800	S20 E09	325	2900	3.0									
79	2	6	15800	S20 W07	326	2800	2.5	20439	S22 W04	325	B	1	B	0	1	AXX
79	2	7	15800	S20 W18	325	2800	2.5									
79	2	8	15800	S21 W29	324	2500	2.5									
79	2	9	15800	S21 W43	324	2500	2.5									
79	2	10	15800	S21 W56	325	2500	2.5									
79	2	11	15800	S21 W68	323	2100	2.5									
79	2	12	15800	S20 W83	321	2500	2.0									

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MCMATH REGION 15805 CMP DATE 6.8 RETURN OF REGION 15753 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	1	15805	N18 E70	317	300	1.0								
79	2	2	15805	N17 E57	315	300	1.0								
79	2	4	15805	N17 E30	317	400	2.0								
79	2	5	15805	N18 E17	317	300	2.0								
79	2	6	15805	N17 E00	319	400	1.5								
79	2	7	15805	N18 W10	317	300	1.5								
79	2	8	15805	N18 W22	317	200	1.5								
79	2	9	15805	N18 W36	317	200	1.5								
79	2	10	15805	N17 W50	319	200	1.5								
79	2	11	15805	N17 W63	318	300	1.0								

MCMATH REGION 15811 CMP DATE 8.3 RETURN OF REGION 15756 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	4	15811	S09 E50	297	200	1.0								
79	2	5	15811	S09 E34	300	200	1.5								
79	2	6	15811	S09 E19	300	300	1.0								
79	2	7	15811	S09 E09	298	200	1.0								
79	2	8	15811	S09 W01	296	200	1.5								
79	2	9	15811	S09 W18	299	100	1.0								
79	2	11	15811	S10 W43	298	100	1.0								
79	2	10	15811	S09 W31	300	100	1.0								
79	2	12	15811	S09 W61	177	100	1.0								

MCMATH REGION 15806 CMP DATE 8.6

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	2	15806	N37 E77	295	800	2.5		N37 E81				B	50	1 HSX
79	2	4	15806	N37 E52	295	1100	2.5		N36 E41				B	50	1 HSX
79	2	5	15806	N37 E39	295	1200	3.5	20435	N34 E32	302	(AP)	3	B	40	1 HRX
79	2	6	15806	N37 E22	297	1200	3.0	20435	N34 E20	301	(AP)	3	B	40	1 HSX
79	2	7	15806	N37 E12	295	1200	3.0								
79	2	8	15806	N36 E00	295	1000	2.5								
79	2	9	15806	N36 W13	294	900	2.0								
79	2	10	15806	N35 W26	295	700	2.0								
79	2	11	15806	N35 W38	293	700	1.5								
79	2	12	15806	N36 W53	291	400	1.5								
79	2	13	15806	N36 W66	292	400	1.5								

MCMATH REGION 15807 CMP DATE 9.1 RETURN OF REGIONS 15754 AND 15773 ROTATIONS 3 AND 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	2	15807	N16 E80	292	1500	2.0		N14 E80				B	20	1 HSX
79	2	4	15807	N16 E60	287	6000	3.0		N15 E61				B	170	2 HSX
79	2	5	15807	N16 E45	289	6500	3.5	20436	N13 E45	289	(BP)	3	B	140	2 DSO
79	2	6	15807	N17 E27	292	6800	3.5	20436	N13 E32	289	(BP)	4	B	280	11 DHI
79	2		15807					20440	N23 E17	304	(AP)	1			
79	2	7	15807	N17 E18	289	6500	3.0	20436	N14 E20	293	(BP)	4			
79	2		15807					20443	N15 E10	297	AP	4	B	180	12 DKI
79	2	8	15807	N16 E07	288	6500	3.5	20436	N14 E05	289	(BP)	4	B	170	7 EAO
79	2		15807					20443	N15 W05	299	(AP)	3	B	20	4 CAO
79	2		15807					20446	N20 E15	279	(AP)	2			
79	2	9	15807	N16 W08	289	6900	3.5	20436	N15 W08	289	(BF)	4	B	220	30 EAI
79	2	10	15807	N16 W21	290	7200	3.5	20436	N15 W25	291	(Y)	4	B	460	17 DAI
79	2	11	15807	N16 W34	289	7000	3.5	20436	N15 W36	291	(D)	4	M	1090	11 EXX
79	2	12	15807	N16 W49	287	7000	3.5	20436	N15 W50	291	(D)	4	R	560	38 EKC
79	2	13	15807	N16 W64	290	7000	3.5	20436	N15 W64	292	(Y)	4	M	560	30 EAI
79	2	15	15807	N20 W90	290	1200	1.5								

MCMATH REGION 15808 CMP DATE 9.2 RETURN OF PART OF REGION 15757 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT CLASS
79	2	2	15808	S21 E83	289	1200	2.5		S21 E85				B	160	5 DSO
79	2	4	15808	S20 E62	285	2200	3.0		S21 E60				B	150	4 DSI
79	2	5	15808	S19 E49	285	2500	3.0	20437	S21 E45	289	(Y)	3	B	310	8 DSC
79	2	6	15808	S20 E31	288	2500	3.5	20437	S20 E32	289	(D)	4	B	310	19 DKI

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MCMATH REGION 15808 (CONT) CMP DATE 9.2 RETURN OF PART OF REGION 15757 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	7	15808	S20 E20	287	2500	3.5	20437	S20 E20	287	Y	4	B	300	24	DKI
79	2	8	15808	S20 E08	287	2800	3.0	20437	S20 E05	289	(Y)	4	B	260	20	DAI
79	2		15808					20445	S17 E07	287	(E)	2				
79	2	9	15808	S21 W07	288	2500	3.0	20437	S21 W07	288	(Y)	4	B	90	10	DRI
79	2		15808					20445	S17 W05	286	(AP)	3	B	140	11	DSI
79	2	10	15808	S21 W20	289	2500	3.0	20437	S22 W22	288	(B)	3	B	60	10	CSI
79	2		15808					20445	S17 W23	289	(AP)	2				
79	2	11	15808	S20 W33	288	2800	3.0	20437	S23 W32	287	(AP)	2	M	150	15	DSI
79	2		15808					20445	S17 W36	291	(Y)	3	M	10	3	BXO
79	2	12	15808	S20 W48	286	2500	3.0	20437	S23 W46	287	(AP)	2	R	20	11	BXO
79	2		15808					20445	S17 W53	294	(AP)	4				
79	2	13	15808	S20 W63	289	2500	3.0									

MCMATH REGION 15812 CMP DATE 10.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	5	15812	S20 E56	278	300	2.0									
79	2	6	15812	S19 E43	276	800	3.0	20441	S20 E44	277	(B)	3	B	100	6	DSI
79	2	7	15812	S19 E33	274	800	3.5	20441	S19 E30	277	BP	4	B	230	13	DKI
79	2	8	15812	S20 E21	274	800	3.0	20441	S19 E18	276	(BP)	5	B	230	8	DSO
79	2	9	15812	S20 E06	275	1300	3.0	20441	S19 E04	277	(BP)	5				
79	2	10	15812	S20 W07	276	1500	3.0	20441	S19 W10	276	(BP)	4	B	180	10	CSI
79	2	11	15812	S20 W19	274	1500	3.0	20441	S20 W21	276	(BP)	4	M	150	16	DSI
79	2	12	15812	S20 W34	272	1700	3.0	20441	S20 W34	275	(AP)	4	R	170	14	DSO
79	2	13	15812	S20 W47	273	1800	3.0	20441	S18 W51	279	(AP)	4				
79	2	15	15812	S20 W73	273	2200	2.5	20441	S18 W79	281	AP	4	R	90	2	HAX
79	2	16	15812	S20 W85	274	1500	2.0		S19 W82				H	100	1	HSX

MCMATH REGION 15810 CMP DATE 11.3 RETURN OF PART OF REGION 15757 ROTATION 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	4	15810	S30 E80	267	600	1.5									
79	2	5	15810	S30 E70	264	1000	2.0									
79	2	6	15810	S30 E60	259	1000	1.5									
79	2	7	15810	S29 E50	257	900	1.5									
79	2	8	15810	S30 E37	258	900	1.5									
79	2	9	15810	S30 E22	259	900	1.5									
79	2	10	15810	S31 E09	260	1200	1.5									
79	2	11	15810	S31 W03	258	1300	1.5									
79	2	12	15810	S31 W18	256	1000	1.5									
79	2	13	15810	S31 W31	257	600	1.5									
79	2	15	15810	S32 W56	256	400	1.5									
79	2	16	15810	S32 W68	257	300	1.0									

MCMATH REGION 15817 CMP DATE 11.8 RETURN OF REGION 15759 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	6	15817	N30 E75	244	200	1.0									
79	2	7	15817	N30 E58	249	300	1.0									
79	2	8	15817	N29 E45	250	300	1.0									
79	2	9	15817	N28 E30	251	300	1.0									
79	2	10	15817	N28 E17	252	200	1.0									
79	2	11	15817	N28 E02	253	100	1.0									
79	2	12	15817	N28 W16	254	200	2.0		N27 W13				R	20	3	BXO
79	2	13	15817	N28 W28	254	200	1.0									

MCMATH REGION 15815 CMP DATE 12.2 RETURN OF REGION 15761 AND PART OF REGION 15762 ROTATIONS 2 AND 3

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	5	15815	S25 E78	256	2000	1.5									
79	2	6	15815	S28 E65	254	2000	2.0									
79	2	7	15815	S25 E64	243	2300	2.0									
79	2	8	15815	S24 E48	247	2300	2.5									
79	2	9	15815	S25 E34	247	2000	2.0									
79	2	10	15815	S25 E20	249	2300	2.5									
79	2	11	15815	S26 E08	247	2300	2.5	20452	S25 E03	252	(AP)	2				
79	2	12	15815	S25 W10	248	2300	2.0									

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MCMATH REGION 15815 (CONT) CMP DATE 12.2 RETURN OF REGION 15761 AND PART OF REGION 15762 ROTATIONS 2 AND 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	13	15815	S26 W21	247	1800	2.0									
79	2	15	15815	S26 W47	247	1700	2.5									
79	2	16	15815	S26 W58	247	1200	2.5									
79	2	17	15815	S26 W65	240	1300	2.0									
79	2	18	15815	S28 W75	237	1200	1.0									
79	2	19	15815	S29 W87	237	500	1.0									

MCMATH REGION 15813 CMP DATE 13.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	6	15813	S18 E86	233	1200	2.5	20442	S17 E80	241	B	4	B	50	2	HSX
79	2	7	15813	S17 E75	232	2000	3.0	20442	S17 E70	237	Y	4	B	130	4	DSO
79	2	8	15813	S16 E63	232	3000	3.0	20442	S17 E56	238	(Y)	4	B	160	8	DSO
79	2	9	15813	S18 E48	233	2700	2.5	20442	S18 E42	239	(Y)	4	B	100	6	DSO
79	2	10	15813	S18 E33	236	3000	3.0	20442	S18 E28	238	(B)	4	B	200	6	EHO
79	2		15813					20449	S14 E24	242	(AP)	3				
79	2	11	15813	S19 E21	234	2800	3.0	20442	S18 E17	238	(Y)	4	M	160	25	EHO
79	2		15813					20449	S14 E13	242	(B)	3	M	150	18	EHO
79	2	12	15813	S19 E05	233	2000	2.5	20442	S16 E02	239	BF	4	R	170	34	ESI
79	2		15813					20449	S14 E00	241	(B)	3				
79	2	13	15813	S17 W11	237	2000	2.5	20442	S16 W12	240	(AF)	4				
79	2		15813					20449	S14 W13	241	(B)	3				
79	2	15	15813	S17 W37	237	1900	3.0	20442	S18 W37	239	(AF)	3	R	70	3	CAO
79	2		15813						S18 W33				R	10	2	BXO
79	2	16	15813	S17 W49	238	1900	3.0		S17 W43				M	80	4	CSO
79	2	17	15813	S17 W62	237	1900	3.0	20442	S17 W65	240	(AF)	3	B	80	1	HSX
79	2	18	15813	S17 W74	236	2100	3.0	20442	S16 W78	240	AP	3	B	80	2	HAX
79	2	19	15813	S17 W86	236	2100	1.5									

MCMATH REGION 15835 CMP DATE 13.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	15	15835	N13 W31	231	100	1.0									
79	2	16	15835	N13 W44	233	100	2.0									

MCMATH REGION 15816 CMP DATE 14.0

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	7	15816	S34 E88	219	300	2.0									
79	2	8	15816	S34 E77	218	600	2.0	20447	S35 E68	226	(AP)	3	B	10	2	BXO
79	2	9	15816	S35 E63	218	600	3.0	20447	S36 E54	227	(AP)	3	B	20	1	HRX
79	2	10	15816	S34 E45	224	1200	3.0	20447	S37 E40	226	(BP)	4	B	130	3	CHO
79	2		15816					20450	S22 E44	222	(B)	2				
79	2	11	15816	S34 E32	223	1200	2.5	20447	S37 E29	226	(BP)	4	B	140	7	DSO
79	2		15816					20450	S23 E34	221	(B)	1				
79	2	12	15816	S35 E16	222	1200	3.0	20447	S37 E17	224	(BP)	4	R	180	12	ESO
79	2	13	15816	S35 E03	223	1200	2.5	20447	S37 E04	224	(BP)	4	M	170	10	DSO
79	2	15	15816	S36 W21	221	1200	2.5	20447	S37 W20	222	(BP)	4	R	100	2	HAX
79	2	16	15816	S36 W33	222	1100	2.5		S38 W31				M	60	1	HSX
79	2	17	15816	S36 W45	220	1100	2.5	20447	S39 W49	224	(AP)	4	B	60	1	HSX
79	2	18	15816	S36 W55	217	1100	2.5	20447	S39 W62	224	(AP)	3	B	70	1	HSX
79	2	19	15816	S36 W67	217	1300	2.5		S38 W76				B	40	1	HSX
79	2	20	15816	S36 W80	217	1300	2.0		S37 W88				B	40	1	HSX

MCMATH REGION 15822 CMP DATE 14.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	11	15822	S09 E37	218	200	2.0	20453	S10 E37	218	(B)	2				
79	2	12	15822	S10 E21	217	200	2.0	20453	S10 E22	219	B	2	R	20	5	BXO
79	2	13	15822	S10 E07	219	400	2.5	20453	S12 E11	217	AP	1				
79	2	15	15822	S10 W19	219	300	2.5									
79	2	16	15822	S10 W31	220	200	2.0									
79	2	17	15822	S10 W44	219	400	1.5									
79	2	18	15822	S10 W57	219	400	1.5									
79	2	19	15822	S11 W69	219	300	1.5									

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MCMATH REGION 15820 — CMP DATE 14.5 — RETURN OF REGION 15768 — ROTATION 6

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	8	15820					
79	2	9	15820	N13	E68	213	300	1.5
79	2	10	15820	N12	E52	217	400	1.0
79	2	11	15820	N13	E35	220	300	1.0
79	2	12	15820	N12	E20	218	400	1.0
79	2	13	15820	N12	E10	216	400	1.0
79	2	15	15820	N13	W15	215	400	1.0
79	2	16	15820	N13	W27	216	200	1.0
79	2	17	15820					
79	2	18	15820					

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20448	N11	E80	214	X	3	B	10	1	HRX
20448	N11	E67	214	AP	4	B	30	1	HSX
20448	N11	E53	213	(AP)	4	B	50	1	HSX
20448	N11	E42	213	(AP)	3				
20448	N11	E29	212	(AP)	4	R	30	1	HSX
20448	N10	E15	213	(AP)	4	M	30	1	HSX
20448	N11	W11	213	(AP)	4	R	20	3	HAX
20448	N11	W36	211	(AP)	3	B	30	1	HSX
20448	N11	W49	211	(AP)	3	B	30	1	HRX

MCMATH REGION 15818 — CMP DATE 15.0 — RETURN OF REGION 15767 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	8	15818	S24	E87	208	900	1.0
79	2	9	15818	S24	E73	208	1000	2.0
79	2	10	15818	S24	E56	213	1500	2.5
79	2	11	15818	S24	E43	212	1600	2.5
79	2	12	15818	S24	E28	210	1400	2.0
79	2	13	15818	S24	E15	211	1400	2.0
79	2	15	15818	S24	W10	210	1200	2.5
79	2	16	15818	S24	W22	211	1200	2.5
79	2	17	15818	S24	W35	210	1400	2.0
79	2	18	15818	S24	W47	209	1500	2.0
79	2	19	15818	S25	W59	209	1200	2.0
79	2	20	15818	S25	W72	209	1200	2.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S24	E48				B	40	2	BXO
20456	S27	E29	212	(B)	2	R	10	4	BXO
	S23	E19				M	0	1	AXX
20462	S22	W27	202	(B)	3	B	20	3	CRO
20462	S21	W42	204	(AP)	2	B	50	1	HSX

MCMATH REGION 15825 — CMP DATE 15.2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	12	15825	N22	E32	206	200	2.5
79	2	13	15825	N22	E18	208	400	3.0
79	2	15	15825	N22	W07	207	1400	3.0
79	2	16	15825	N23	W19	208	1500	3.5
79	2	17	15825	N23	W32	207	1600	3.0
79	2	18	15825	N23	W45	207	1800	3.0
79	2	19	15825	N23	W57	207	1800	3.0
79	2	20	15825	N24	W70	207	1400	3.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20455	N21	E32	209	(B)	2	R	20	5	BXO
20455	N22	E19	209	(B)	4	M	90	17	DAO
20455	N21	W06	208	(B)	4	R	240	22	DAO
20455	N21	W32	207	(B)	4	B	190	9	DAO
20455	N21	W46	208	(BP)	4	B	130	2	CSO
	N22	W62				B	40	1	HSX
	N23	W85				B	40	1	HSX

MCMATH REGION 15819 — CMP DATE 16.1

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	9	15819	N16	E68	193	500	2.0
79	2	10	15819	N17	E70	199	600	2.0
79	2	11	15819	N18	E58	197	600	2.0
79	2	12	15819	N18	E43	195	700	1.5
79	2	13	15819	N18	E26	200	800	2.0
79	2	15	15819	N18	E04	196	600	2.0
79	2	16	15819	N18	W09	198	500	2.0
79	2	17	15819	N18	W20	195	300	1.5

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20451	N17	E65	201	AP	2	B	10	1	AXX
20451	N17	E53	202	(AP)	2	B	10	1	AXX
	N22	E27				M	30	5	DRO

MCMATH REGION 15836 — CMP DATE 17.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	16	15836	N09	E09	180	200	2.5
79	2	17	15836	N08	W04	179	700	2.5
79	2	18	15836	N08	W17	179	800	2.0
79	2	19	15836	N08	W29	179	1000	3.0
79	2	20	15836	N08	W43	180	1000	3.5
79	2	22	15836	N08	W70	180	1500	3.0

SUNSPOT DATA

NW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20465	N08	W04	179	(B)	4	B	100	5	DSO
20465	N08	W17	179	(B)	4	B	320	11	DKI
	N08	W31				B	430	16	DKI
	N09	W45				B	220	20	DAI
	N18	W70				B	240	4	DSI

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MCMATH REGION 15823 CMP DATE 17.8 RETURN OF REGION 15772 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	11	15823	N20 E83	172	2200	2.0	20454	N20 E80	175	(X)	4	B	20	1	HSX
79	2	12	15823	N20 E68	170	3800	3.0	20454	N19 E70	171	(B)	4	R	310	7	DKO
79	2	13	15823	N19 E53	173	4100	3.0	20454	N19 E58	170	(B)	4	H	320	7	EHO
79	2	15	15823	N20 E27	173	4500	3.0	20454	N19 E30	172	(BP)	4	R	2340	30	EKO
79	2	16	15823	N19 E17	172	5300	3.0									
79	2	17	15823	N19 E03	172	5800	3.0	20454	N18 E02	173	(D)	4	B	690	32	EKI
79	2	18	15823	N19 W11	173	5800	3.0	20454	N18 W14	176	(D)	4	B	600	21	DKC
79	2	19	15823	N19 W23	173	5200	3.0		N18 W27				B	550	16	DKC
79	2	20	15823	N19 W36	173	5300	3.5		N18 W41				B	520	17	DKI
79	2	22	15823	N20 W61	171	4700	3.5									
79	2	24	15823	N24 W90	173	1000	1.5									

MCMATH REGION 15827 CMP DATE 17.8

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15827	S16 E67	171	400	2.5									
79	2	13	15827	S16 E53	173	800	2.5	20459	S17 E54	174	(B)	3				
79	2	15	15827	S15 E27	173	1100	3.0	20459	S15 E28	174	(B)	3	R	50	11	DRO
79	2	16	15827	S15 E14	175	1100	2.5		S16 E23				H	50	10	DSO
79	2	17	15827	S15 E02	173	1200	3.0	20459	S16 E01	174	(BP)	4	B	80	10	DAI
79	2	18	15827	S15 W11	173	900	2.5	20459	S16 W13	175	(BP)	3	B	90	4	DAO
79	2	19	15827	S15 W24	174	900	3.0		S14 W27				B	70	4	DAO
79	2	20	15827	S15 W37	174	1000	3.0		S13 W41				B	30	2	AXX
79	2	22	15827	S15 W63	173	1200	3.0		S18 W59				B	10	2	BXO
79	2	24	15827	S15 W90	173	400	1.5									

MCMATH REGION 15828 CMP DATE 18.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15828	N04 E77	161	1100	3.5	20457	N02 E75	166	X	3	R	160	3	HAX
79	2	13	15828	N04 E63	163	1300	3.5	20457	N02 E61	167	(BP)	2	H	100	8	CAO
79	2	15	15828	N04 E37	163	1400	3.0	20457	N02 E35	167	(BP)	4	R	60	10	CSO
79	2	16	15828	N04 E25	164	1700	3.0		N02 E32				H	90	9	CAO
79	2	17	15828	N04 E11	164	1400	3.0	20457	N02 E09	166	(BP)	4	B	40	6	CSI
79	2	18	15828	N03 W03	165	1200	2.5	20457	N02 W06	168	(AP)	3	B	40	4	CAO
79	2	19	15828	N03 W16	166	1300	2.5		N02 W18				B	20	3	CSO
79	2	20	15828	N03 W29	166	1300	2.5		N03 W33				B	10	2	AXX
79	2	22	15828	N03 W56	166	900	2.0									
79	2	24	15828	N04 W83	166	600	1.0									

MCMATH REGION 15839 CMP DATE 18.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	19	15839	S21 W16	166	100	2.0		S21 W18				B	50	4	DAO
79	2	20	15839	S21 W29	166	300	2.0									
79	2	22	15839	S22 W56	166	300	2.5		S23 W59				B	10	2	BXO
79	2	24	15839	S21 W82	165	400	1.5									

MCMATH REGION 15826 CMP DATE 19.1 RETURN OF REGION 15783 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	12	15826	S34 E75	163	500	1.5									
79	2	13	15826	S35 E62	164	500	1.0									
79	2	15	15826	S35 E42	158	700	1.0									
79	2	16	15826	S35 E30	159	600	1.5									
79	2	17	15826	S34 E18	157	400	1.0									
79	2	18	15826	S34 E06	156	300	1.0									
79	2	19	15826	S34 W06	156	300	1.0									
79	2	20	15826	S34 W18	155	300	1.5									
79	2	22	15826	S34 W44	154	300	1.0									
79	2	24	15826	S34 W70	153	200	1.0									

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MCMATH REGION 15833 — CMP DATE 19.6 — RETURN OF REGION 15778 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	13	15833	S14	E72	154	400	1.0
79	2	15	15833	S15	E48	152	400	1.0
79	2	16	15833	S15	E36	153	500	1.0
79	2	17	15833	S14	E24	151	600	1.0
79	2	18	15833	S13	E12	150	500	1.0
79	2	19	15833	S13	E00	150	500	1.0
79	2	20	15833	S14	W13	150	600	1.0
79	2	22	15833	S15	W39	149	600	1.0
79	2	24	15833	S15	W65	148	600	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15830 — CMP DATE 20.1 — RETURN OF REGION 15777 — ROTATION 4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	13	15830	N15	E85	141	4000	2.5
79	2	15	15830	N14	E58	142	7200	3.5
79	2	16	15830	N14	E45	144	8000	3.5
79	2	17	15830	N15	E33	142	7600	3.0
79	2	18	15830	N15	E19	143	8000	3.0
79	2	19	15830	N15	E07	143	8000	3.5
79	2	20	15830	N15	W07	144	8500	3.5
79	2	22	15830	N15	W33	143	7800	3.5
79	2	24	15830	N15	W59	142	7800	3.5
79	2	25	15830					
79	2	26	15830	N15	W85	142	2500	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20460	N17	E80	148	(X)	3	H	330	5	ESO
20460	N15	E55	147	(Y)	4	R	330	10	DSO
	N16	E48				H	120	13	DSI
20460	N15	E28	147	(Y)	5	B	700	43	FHI
20460	N17	E15	147	(Y)	5	B	870	48	FKI
	N16	E02				B	970	84	FKI
	N16	W13				B	1160	64	FKI
	N17	W40				B	1210	15	FKI
20460	N17	W68	150	(BF)	3	B	710	16	FKI
20460	N17	W76	146	(AP)	3	R	470	7	FKO

MCMATH REGION 15832 — CMP DATE 21.0 — RETURN OF REGION 15779 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	13	15832	S25	E88	138	400	1.0
79	2	15	15832	S26	E68	132	1600	3.0
79	2	16	15832	S26	E57	132	2300	3.5
79	2	17	15832	S26	E43	132	2300	3.0
79	2	18	15832	S26	E30	132	2300	3.0
79	2	19	15832	S26	E18	132	2300	3.0
79	2	20	15832	S26	E05	132	2300	3.0
79	2	22	15832	S26	W20	130	2300	2.5
79	2	24	15832	S26	W45	128	2300	2.5
79	2	25	15832					
79	2	26	15832	S26	W70	127	1500	2.0
79	2	27	15832	S26	W82	126	900	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20461	S27	E69	133	(BP)	3	R	240	7	CSO
	S27	E64				H	90	4	CSO
20461	S27	E43	132	(AP)	4	B	170	2	CHO
20461	S27	E29	133	(AP)	4	B	190	6	CHI
	S27	E16				B	110	6	CHI
	S27	E03				B	120	4	HSX
	S27	W22				B	110	1	CSO
20461	S28	W49	131	(BP)	3	B	120	2	HSX
20461	S28	W60	130	(AP)	3	R	90	5	CRO
	S25	W75				B	20	1	HSX
	S27	W78				H	50	1	HSX

MCMATH REGION 15834 — CMP DATE 22.5 — RETURN OF REGION 15785 — ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	15	15834	S13	E90	110	500	1.0
79	2	16	15834	S14	E79	110	1300	2.0
79	2	17	15834	S13	E64	111	1700	2.5
79	2	18	15834	S13	E51	111	1500	2.5
79	2	19	15834	S14	E39	111	1800	3.0
79	2	20	15834	S14	E26	111	1800	2.5
79	2	22	15834	S14	W01	111	1800	2.0
79	2	24	15834	S14	W27	110	1400	2.0
79	2	26	15834	S14	W55	112	1200	2.5
79	2	27	15834	S13	W68	112	1200	2.5
79	2	28	15834	S14	W80	111	800	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S16	E41				B	50	2	DSO
	S13	W54				B	0	1	AXX

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MCMATH REGION 15837 — CMP DATE 22.8 — RETURN OF REGION 15787 — ROTATION 3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	16	15837	N23	E80	109	3000	2.5
79	2	17	15837	N23	E66	109	3000	3.0
79	2	18	15837	N23	E53	109	3000	3.0
79	2		15837					
79	2	19	15837	N23	E41	109	2700	3.0
79	2	20	15837	N24	E29	108	2500	3.0
79	2	22	15837	N24	E03	107	1900	3.0
79	2	24	15837	N24	W23	106	1400	3.0
79	2	26	15837	N24	W50	107	1200	3.0
79	2	27	15837	N24	W62	106	1200	2.0
79	2	28	15837	N24	W74	105	1000	1.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20463	N21	E65	110	AP	1	B	10	1	AXX
20463	N21	E50	112	B	1	B	10	2	BXO
20466	N26	E64	98	X	1				
	N22	E37				B	20	3	BXO
	N22	E25				B	20	7	BXX

MCMATH REGION 15844 — CMP DATE 23.9

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	22	15844	S20	E16	94	100	2.0
79	2	24	15844	S19	W10	93	400	2.0
79	2	26	15844	S19	W38	95	800	2.5
79	2	27	15844	S19	W50	94	700	2.5
79	2	28	15844	S19	W63	94	400	2.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
	S19	W36				B	0	1	AXX
	S20	W43				H	10	1	AXX

MCMATH REGION 15838 — CMP DATE 25.1 — RETURN OF REGIONS 15786 AND 15788 ROTATIONS 2 AND 5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	17	15838	S26	E85	90	1000	1.0
79	2	18	15838	S24	E80	82	1400	1.5
79	2	19	15838	S25	E69	81	1400	1.5
79	2	20	15838	S25	E57	80	1400	2.5
79	2	22	15838	S25	E32	78	1600	2.0
79	2	24	15838	S25	E06	77	1200	1.5
79	2		15838					
79	2	25	15838					
79	2		15838					
79	2	26	15838	S25	W20	77	1400	1.5
79	2		15838					
79	2	27	15838	S25	W31	75	1200	1.5
79	2		15838					
79	2	28	15838	S24	W42	73	1200	1.5
79	2		15838					
79	3	01	15838					
79	3	02	15838					
79	3		15838					
79	3	03	15838	S24	W83		500	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20464	S25	E90	85	X	3				
20464	S25	E77	85	(AP)	4	B	90	1	HSX
	S25	E61				B	80	1	HSX
	S25	E63				B	70	1	HSX
	S25	E37				B	40	1	HSX
20464	S26	W03	85	(AP)	3				
20471	S26	E12	70	(AP)	3				
20464	S25	W15	85	(AP)	3				
20471	S25	E00	70	(AP)	3	R	130	1	HSX
	S24	W12				B	40	1	HSX
	S24	W27				B	80	1	HAX
20464	S25	W40	83	(AP)	4	H	90	1	HSX
20471	S26	W25	68	(AP)	3	H	60	1	HSX
20464	S25	W53	83	(AP)	3	R	120	3	HAX
20471	S26	W38	68	(AP)	3	R	80	1	HSX
	S26	W54				B	50	1	H
20464	S25	W79		(AP)	3	B	40	1	H
20471	S26	W65		(AP)	3				
20471	S27	W77		(AP)	3	B	40	1	H

MCMATH REGION 15851 — CMP DATE 25.3

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	25	15851					
79	2	26	15851	S31	W18	75	800	2.0
79	2	27	15851	S32	W30	74	1100	2.5
79	2	28	15851	S32	W43	74	1100	3.0
79	3	01	15851					
79	3	02	15851					
79	3	03	15851	S32	W82		900	2.5

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20473	S33	W05	75	(BP)	2	R	40	6	DRO
	S32	W18				B	50	9	DAI
20473	S33	W31	74	(B)	3	H	120	15	DAI
20473	S33	W44	74	(B)	3	R	150	6	DAO
	S32	W61				B	90	10	D
20473	S32	W70		(B)	3	B	70	5	C
20473	S32	W85		(AP)	3	B	30	1	H

MCMATH REGION 15845 — CMP DATE 25.4

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT	CMD	L	AREA	INT
79	2	22	15845	N12	E38	72	100	1.0
79	2	24	15845	N11	E10	73	100	1.5
79	2	26	15845	N12	W17	74	100	1.0

SUNSPOT DATA

MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20469	N12	E08	74	(B)	2	B	10	1	AXX

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MCMATH REGION 15840 CMP DATE 26.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	19	15840	N38 E90	60	300	1.0									
79	2	20	15840	N37 E78	59	1000	2.0		N36 E70				B	140	1	HSX
79	2	22	15840	N37 E53	60	1700	2.5		N36 E43				B	190	2	CSO
79	2	24	15840	N38 E24	59	1400	2.5	20470	N36 E17	65	(AP)	3	B	130	1	HHX
79	2	25	15840					20470	N36 E06	64	(AP)	3	R	150	5	CAO
79	2	26	15840	N39 W01	58	1500	2.5		N40 W03				B	0	1	AXX
79	2	27	15840	N39 W12	56	1700	2.5	20470	N36 W19	62	(AP)	4	H	90	3	CAO
79	2	28	15840	N39 W25	56	2000	2.0	20470	N36 W31	61	(AP)	3	R	70	3	CSO
79	3	01	15840						N36 W47				B	30	2	H
79	3	02	15840					20470	N37 W57		(AP)	2	B	30	1	H
79	3	03	15840	N39 W61		1600	1.5	20470	N37 W69		(AP)	2	B	10	2	B
79	3	04	15840	N40 W76		600	1.0									

MCMATH REGION 15841 CMP DATE 26.6 RETURN OF REGION 15792 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	20	15841	S14 E80	57	300	1.0									
79	2	22	15841	S14 E53	57	300	1.5									
79	2	24	15841	S14 E27	56	200	1.0									
79	2	26	15841	S14 W01	58	300	1.0									
79	2	27	15841	S13 W15	59	100	1.0									
79	2	28	15841	S13 W28	59	300	1.0									
79	3	03	15841	S13 W70		200	1.0									

MCMATH REGION 15846 CMP DATE 26.9 RETURN OF REGION 15791 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	22	15846	N25 E56	54	300	1.0									
79	2	24	15846	N24 E30	53	200	1.0									
79	2	26	15846	N24 E03	54	200	1.5									
79	2	27	15846	N25 W08	52	200	1.0									
79	2	28	15846	N25 W21	52	400	1.0									
79	3	03	15846	N26 W61		400	1.0									

MCMATH REGION 15852 CMP DATE 27.2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	26	15852	S19 E08	49	300	2.0		S18 E09				B	30	6	DSI
79	2	27	15852	S19 W04	48	600	2.0	20475	S18 W06	49	(B)	3	H	50	12	DRO
79	2	28	15852	S18 W17	48	900	2.5	20475	S19 W17	47	(B)	3	R	70	15	DAO
79	3	01	15852						S18 W36				B	30	7	C
79	3	02	15852						S19 W51				B	20	5	B
79	3	03	15852	S19 W57		1200	3.0	20483	S19 W60		(AP)	3	B	130	6	D
79	3	04	15852	S20 W72		1300	3.0	20483	S18 W74		(B)	2	B	20	4	B

MCMATH REGION 15842 CMP DATE 27.5 RETURN OF REGION 15797 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	22	15842	N10 E65	45	100	1.5									
79	2	24	15842	N10 E40	43	200	1.5									
79	2	26	15842	N10 E12	45	200	1.5									
79	2	27	15842	N10 W01	45	200	1.5									
79	2	28	15842	N10 W16	47	300	1.5									
79	3	03	15842	N12 W56		300	1.0									

MCMATH REGION 15857 CMP DATE 27.5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	28	15857	S33 W14	45	100	1.0									
79	3	01	15857						S33 W33				B	70	12	D
79	3	02	15857					20479	S34 W42		(B)	3	B	80	13	D
79	3	03	15857	S33 W54		900	3.0	20479	S34 W54		(B)	3	B	90	7	D

CONTD

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MCMATH REGION 15857 (CONT) CMP DATE 27.5

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	3	04	15857	S34 W67		800	3.0	20479	S33 W67		(B)	2	B	30	4	B
79	3	06	15857	S34 W90		400	2.0									

MCMATH REGION 15843 CMP DATE 28.6

				CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
79	2	22	15843	N24 E65	25	400	2.0									
79	2	24	15843	N24 E54	29	800	2.0									
79	2	26	15843	N24 E26	31	800	2.5									
79	2	27	15843	N24 E14	30	900	2.5									
79	2	28	15843	N24 E00	31	1000	2.5									
79	3	01	15743						N24 W13				B	10	2	B
79	3	02	15843						N23 W28				B	10	2	B
79	3	03	15843	N25 W39		1100	2.0	20484	N23 W38		(B)	2	B	10	2	B
79	3	04	15843	N24 W54		1100	2.0									
79	3	06	15843	N27 W80		600	1.0									

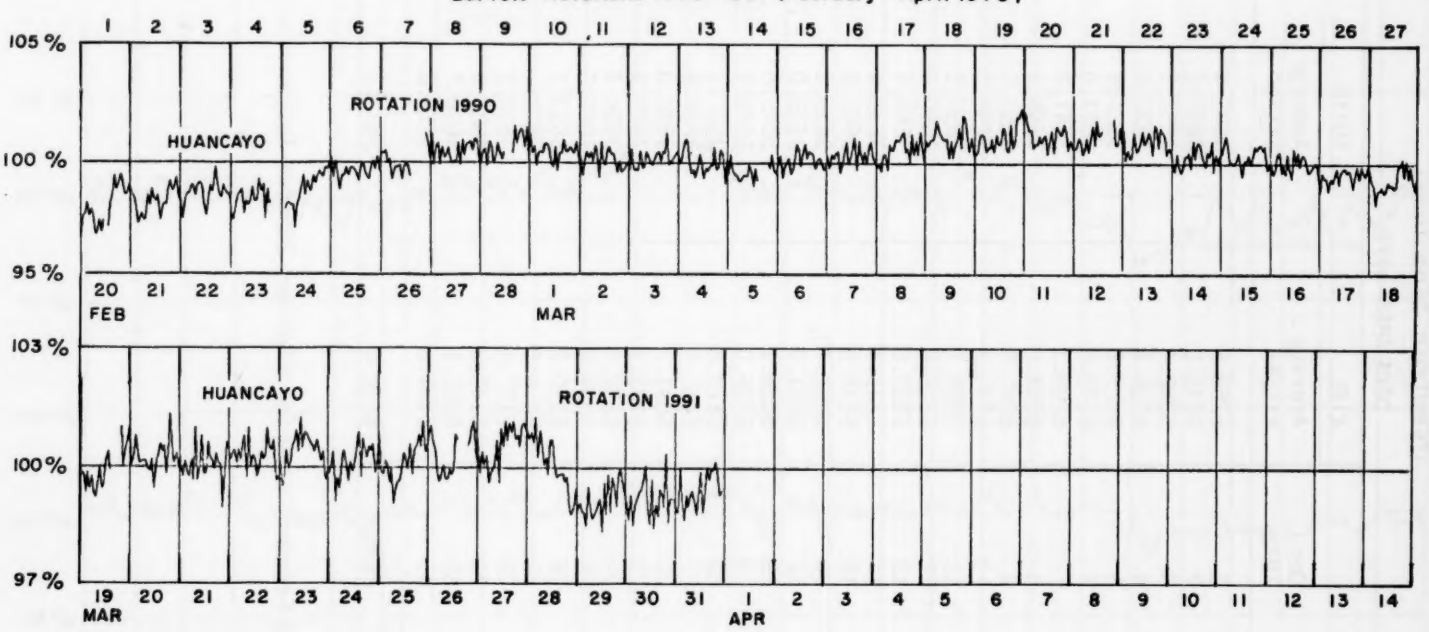
NOTE: NO CALCIUM SPECTROHELIOGRAMS WERE SECURED AT THE MCMATH-HULBERT OBSERVATORY ON FEB. 3, 14, 21, 23, AND 25, 1979.
NO SUNSPOT OBSERVATIONS WERE MADE AT MT. WILSON ON FEB. 1, 2, 3, 4, 14, 16, 19, 20, 21, 22, 23, AND 26, 1979.

COSMIC RAY INDICES
(Neutron Monitors)

MARCH 1979

March 1979	HUANCAYO Average cts/hr
1	1736.4
2	1731.3
3	1731.8
4	1728.8
5	1721.2
6	1730.5
7	1734.5
8	1738.7
9	1747.7
10	1748.8
11	1749.7
12	1747.9
13	1744.8
14	1733.2
15	1734.4
16	1727.8
17	1718.6
18	1714.9
19	1719.9
20	1725.7
21	1722.8
22	1726.8
23	1729.1
24	1723.7
25	1723.7
26	1727.8
27	1732.0
28	1723.3
29	1704.0
30	1704.4
31	1709.0
MEAN	1728.8

Scaling factor at Huancayo is 100.


COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotations 1990-1991 (February - April 1979)
105 %
100 %
95 %
HUANCAYO
ROTATION 1990
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
20 21 22 23 24 25 26 27 28 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
FEB
MAR
103 %
100 %
97 %
HUANCAYO
ROTATION 1991
19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14
MAR
APR

COSMIC RAY INDICES
(Neutron Monitors)
DECEMBER 1978

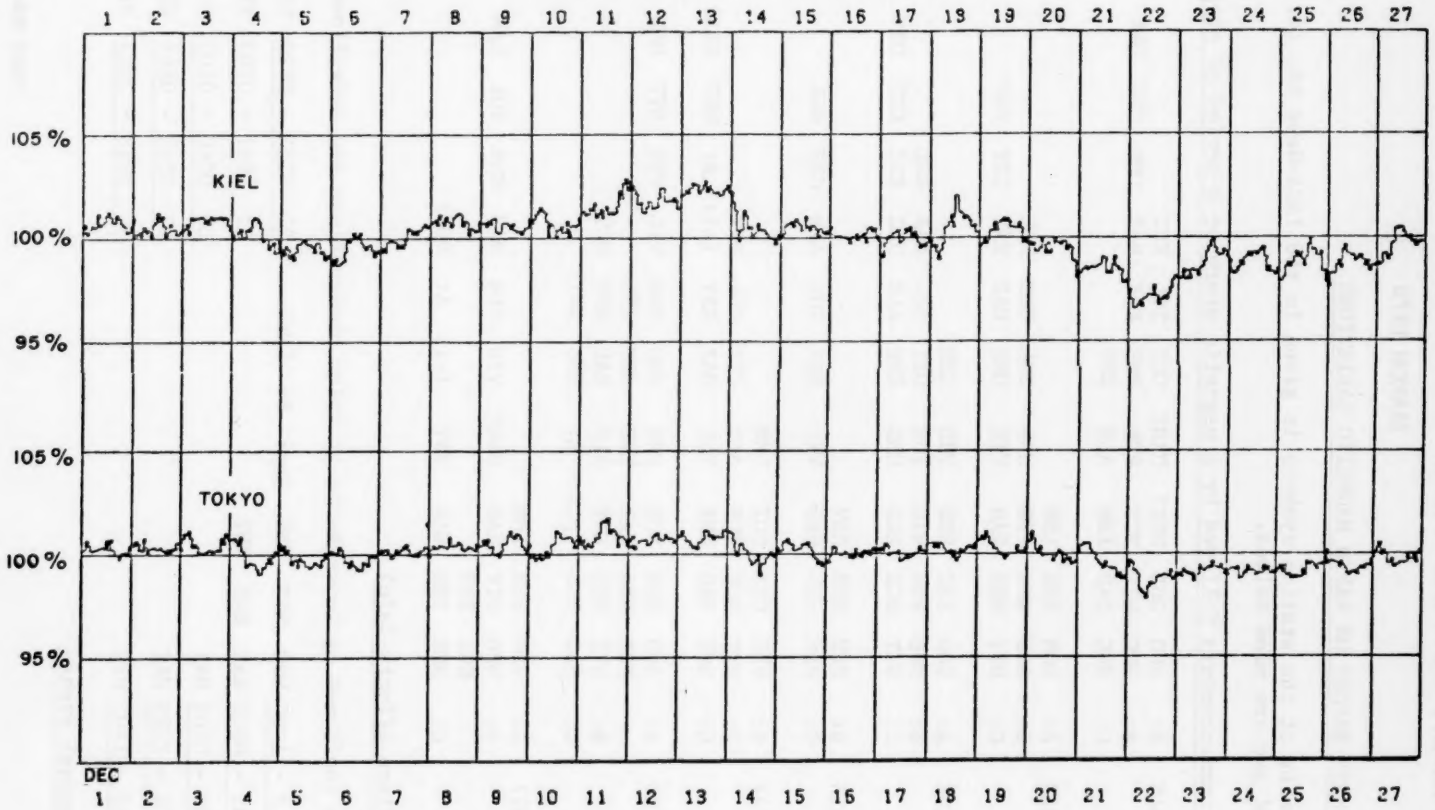
Dec. 1978	KIEL Average cts/hr	TOKYO Average cts/hr
1	6250.8	3645.4
2	6235.8	3648.6
3	6258.4	3652.5
4	6216.4	3632.0
5	6173.8	3627.6
6	6173.8	3627.0
7	6208.3	3641.3
8	6253.2	3648.9
9	6241.9	3653.6
10	6249.7	3650.0
11	6304.1	3667.5
12	6316.6	3660.6
13	6350.8	3664.5
14	6236.4	3638.4
15	6235.9	3642.8
16	6212.7	3636.0
17	6201.9	3638.0
18	6236.1	3645.0
19	6226.0	3646.5
20	6173.8	3637.1
21	6111.5	3622.8
22	6031.7	3593.0
23	6132.3	3605.3
24	6132.4	3604.5
25	6134.0	3607.2
26	6130.2	3613.7
27	6186.0	3628.7
28	6177.4	3632.2
29	6145.3	3622.3
30	6051.1	3600.7
31	5984.0	3579.8
MEAN	6192.6	3632.7

Scaling Factors: 100 for Kiel and 256 for Tokyo.

COSMIC RAY INDICES

(Neutron Monitors)

Bartels Rotation 1987 (December 1978)



75
Misc
Dec 78

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

MARCH 1979

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS

The meaning of the station symbols is given in the IAGA-News nr. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

04	0445	A:	SOD	DOB	DOU?	HRB?	COI	TOL	KGL			
		B:	WNG	WIT	VIC	FUR	MMB	KAK	HAZ	LMM	CZT	DRV
		C:	NGK	HAD	EBR	ALM	KNY					
06	0818	A:	DOB	ESK	LMM							
		B:	SOD	WNG	FUR	HRB	TOL	KAK	KGL			
		C:	WIT	NGK	HAD	VIC	MMB	HAZ	KNY	CZT	DRV	
09	0808	A:	SOD	ESK	HRB	FRD	LMM					
		B:	DOB	WNG	VIC	FUR	OTT	TOL	KAK	KGL		
		C:	WIT	NGK	HAD	MMB	EBR	ALM	HAZ	KNY	CZT	DRV
15	0556	B:	FUR	HRB	DRV							
		C:	WNG	NGK	HAD	VIC	EBR	TOL	ALM	CZT	KGL	
17	0231	A:	VIC	OTT	COI	LMM						
		B:	WIT	DOU	FUR	ALM	CZT	KGL	DRV			
		C:	NGK	HAD	MMB	TOL	HAZ	KNY	(si:	A:	WNG	HRB)
22	0826	A:	SOD	DOB	NUR	ESK	WNG	DOU	VIC	FUR	OTT	MMB	EBR	COI
			FRD	KSA	HAZ	LMM	CZT	KGL						
		B:	WIT	NGK	HRB	ALM	KAK	KNY	DRV					
		C:	HAD	TOL	(pil:	A:	MMB	KNY)						
28	0827	A:	SOD	ESK	LMM									
		B:	WNG	WIT	HAD	DOU?	VIC	FUR	HRB	MMB	TOL	KAK	KSA	CZT
			KGL	DRV										
		C:	NGK	EBR	HAZ	KNY	(si: | A: | DOB)					

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

01	1012 - 1050	WNG	WIT	EBR	(bp:	B:	LMM)	22	0323 - 0420	MMB	KAK	HAZ	KNY
02	0335 - 0400	KAK	HAZ	KNY				23	0647 - 0700	KNY			
19	0050 - 0109	HAZ						25	0040 - 0100	KAK	HAZ	KNY	
20	2310 - 2320	HAZ						27	0545 - 0645	KNY			
21	1345 - 1405	HRB						31	2319 - 2333	HAZ			

Very unusual events

none

☆GPO 1979—677-073/2

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